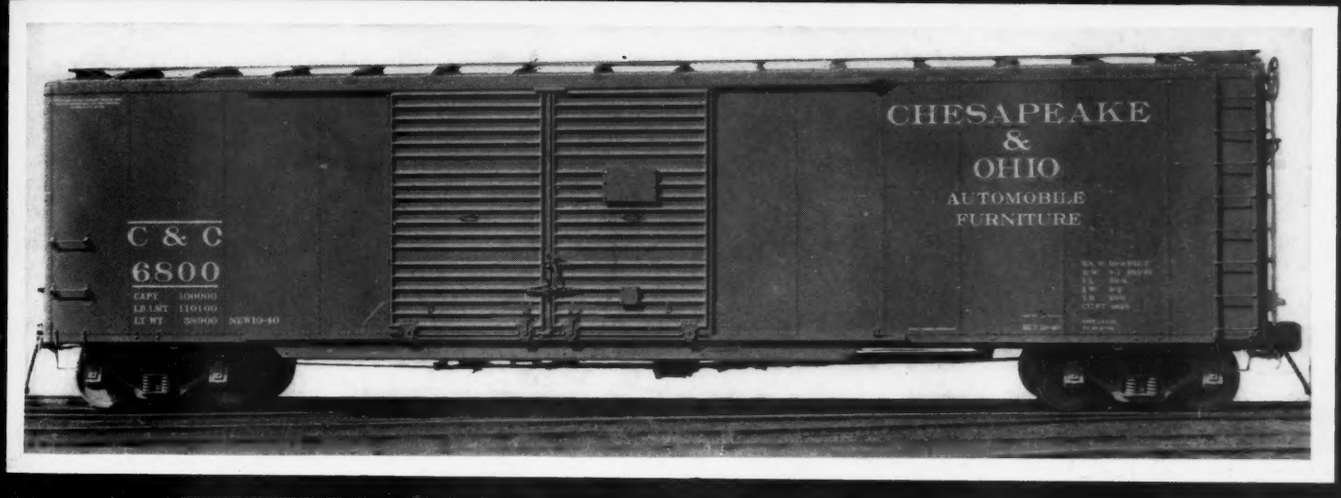
MARCH 29,, 1941

Railway Age

Founded in 1856

APR 1 1941

YOUNGSTOWN STEEL DOORS
Camel Roller Lift Fixtures



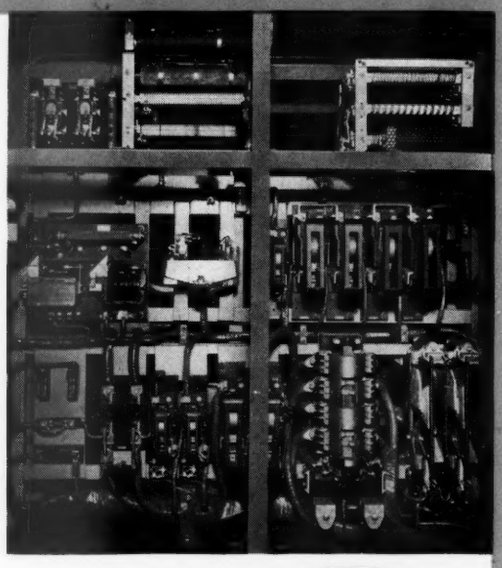
50'-6"

Automobile Cars of 1940

YOUNGSTOWN STEEL DOOR COMPANY

Cleveland Chicago New York Youngstown

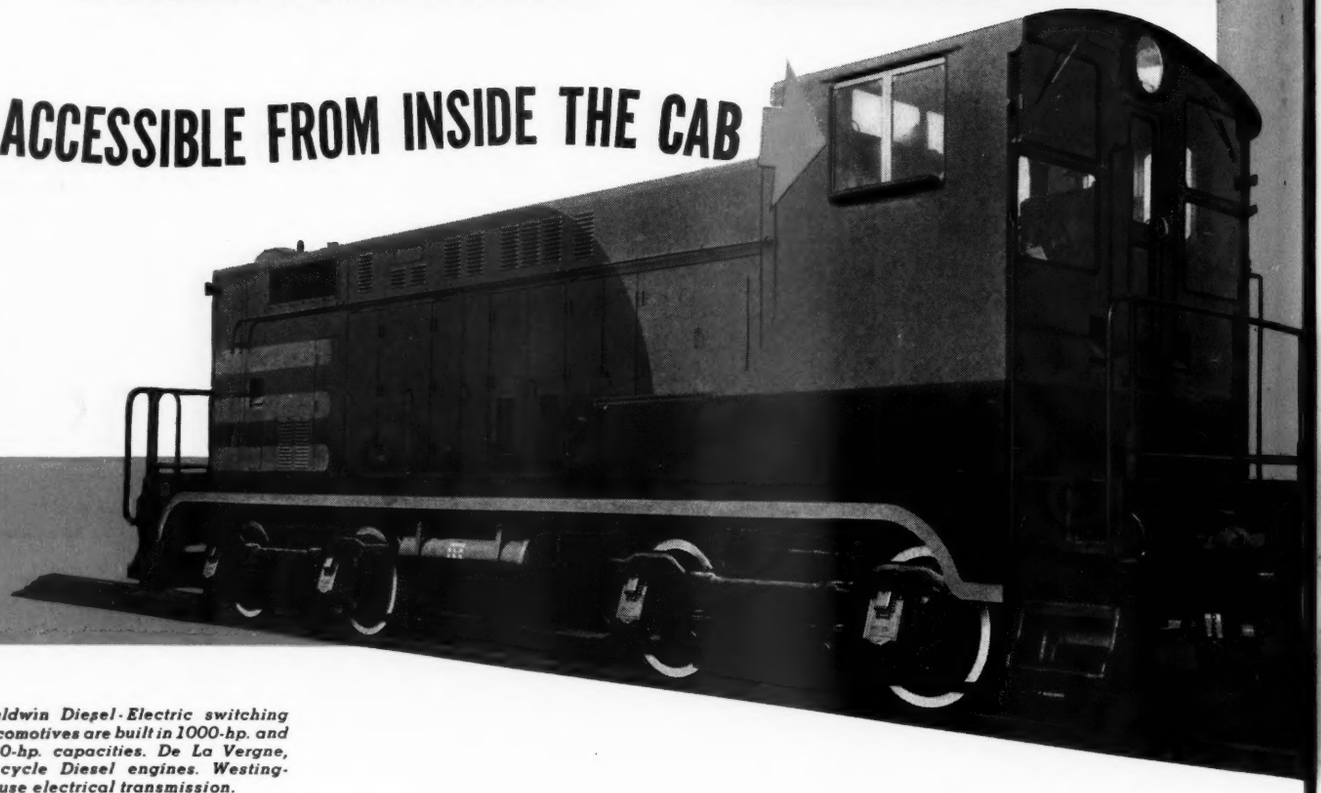
BALDWIN *Diesel-Electrics*



Control

OF ELECTRICAL TRANSMISSION

ACCESSIBLE FROM INSIDE THE CAB



Baldwin Diesel-Electric switching locomotives are built in 1000-hp. and 660-hp. capacities. De La Vergne, 4-cycle Diesel engines. Westinghouse electrical transmission.

● The high-voltage, power-current, and auxiliary apparatus for the control of the Westinghouse electrical transmission system is conveniently arranged on a single panel. It is housed in a closed compartment at the front of each Baldwin Diesel-Electric switching locomotive cab. Double doors give quick access for inspection, thus insuring — with safety — periodic attention regardless of outside weather conditions.

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THE BALDWIN LOCOMOTIVE WORKS

Philadelphia

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Railway Storekeepers Show Best Turnover in Years 558

Railway Age's annual analysis of railway inventories on practically all Class I railroads in the U. S. (and several switching and terminal companies) is presented in this article.

"Sea-Going" Locomotive Cranes Expedite This Pier Job 567

A description of the large open-top timber pier erected by the B. & O. at Baltimore, Md., the construction of which was speeded up by the use of three locomotive cranes.

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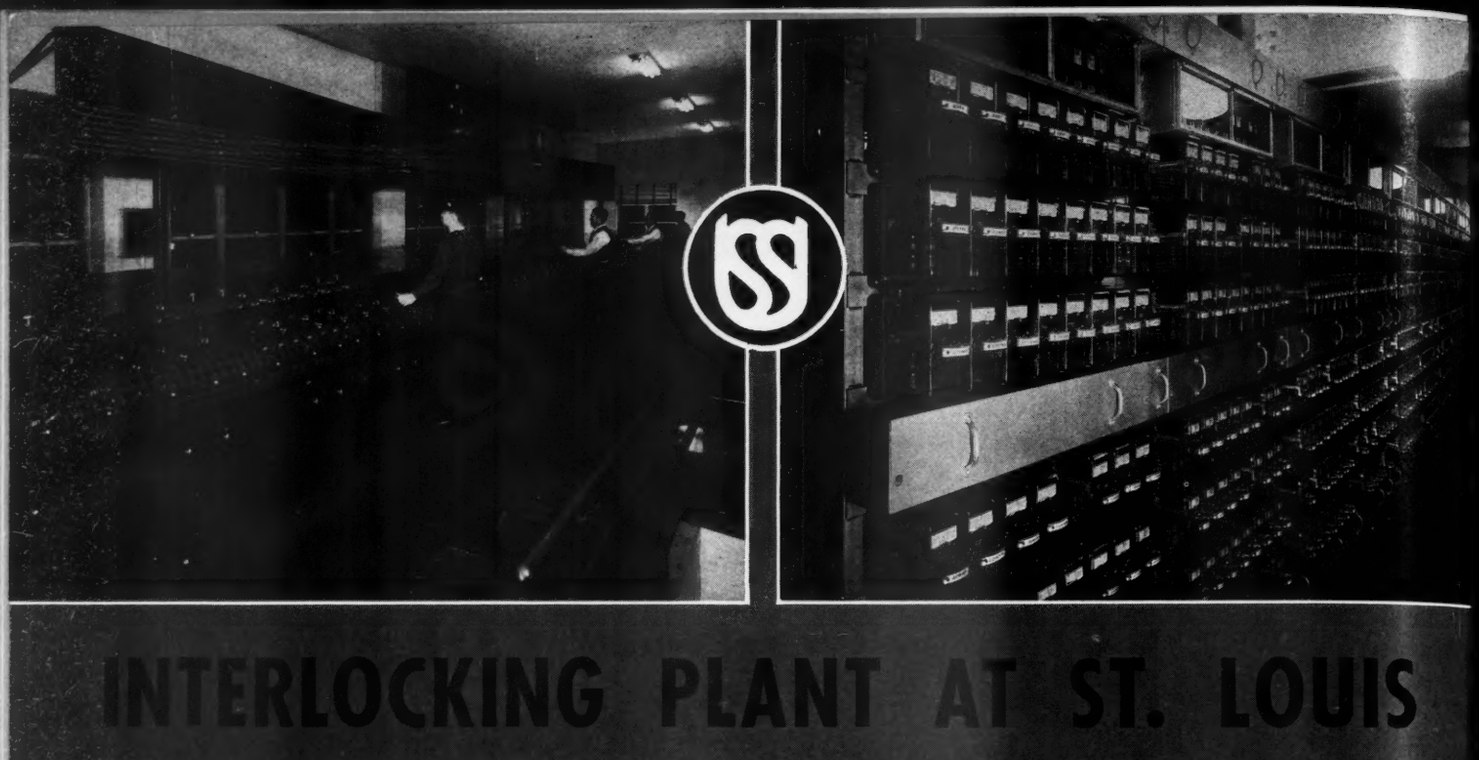


INTERLOCKING PLANT AT ST. LOUIS RESTORED TO SERVICE IN RECORD TIME

TOWER 1, destroyed by fire on July 22, 1940, controlled all train movements into and out of the largest passenger terminal in the country. It was necessary to place this plant back in service quickly and the Union Switch & Signal Company, cooperating with the railroad in this emergency, shipped the machine and tower material 60 days after receipt of order.

The largest electro-pneumatic interlocking machine and track model in America was installed in the new tower. This machine consists of:

303 lever frame with 260 working levers, 12 spare levers and 31 spare spaces, to control:

90 switches and derails
53 double slip and 3 single slip switches with solid frogs
7 double slip switches with movable point frogs
142 high signals
141 low signals

Track and line relays are of the "Union" PN-50 Plug-In type mounted on the tower relay racks. This simplifies inspection and maintenance.

Relay racks, power distribution switch board with "Union" rectifiers and main terminal boards were all wired with flame-resistant insulated conductor and completely assembled at the factory before shipment.

The "Union" Train Starting system was installed for the 42 station tracks.

"Union" Electro-Pneumatic Interlocking is not only applicable to large terminal interlockings—it is just as efficient and economical at small, isolated locations. Consult our engineers on any interlocking problem, without obligation.

1897

UNION SWITCH & SIGNAL COMPANY
SWISSVALE, PA.

NEW YORK • CHICAGO • ST. LOUIS • SAN FRANCISCO

The Week at a Glance

3 MEN ON A SPOT: The long-delayed appointment by the President of the Transportation Board and his naming of relatively inexperienced young men as its members is not going to make the already-difficult task of this important body any easier. Having no powers save advisory ones, fame and prestige already won would have been a big asset to these men in persuading Congress and the nation that their advice, once given, was competent and worthy of acceptance. On the other hand, the members of this board have gone far enough in their careers to recognize that the honor conferred upon them constitutes a great promotion, and offers an opportunity for them to establish themselves as far-seeing statesmen. As General Johnson has quoted Woodrow Wilson as saying, men in such a situation either grow up or swell up. For their own sakes as well as that of the country's interest in reducing the chaos in transportation, it is to be hoped that the former alternative will be the one they will wisely choose.

●

UNIONS VOTED FOR SEAWAY: In the election last fall, the leaders of most of the railway labor organizations urged their members to support President Roosevelt in spite of the fact that they knew very well what his intentions were regarding the St. Lawrence project, so disastrous to railway employment. When it comes to endorsing candidates for office, the unions go wholly on the aspirant's so-called "labor record"; their opposition to socialistic competition by the government is supported by their voices, but not by their votes. The waterway and superhighway politicians are perfectly aware of this fact, as the leading editorial herein points out; and that is why waterways and superhighways continue to make the progress they do.

●

"PETITE VITESSE" RATES: Gasoline rates in the mid-continent area have been reduced for the benefit of the "non-integrated" producers (i.e., those not owning pipe lines). Not only the railroads, but the pipe lines also, are being required to make things better for the "independents." Moreover, the railroads are advised to look into a plan to provide multiple-car "quantity" rates on a basis of slow service—using cars with such lading merely to fill out tonnage. Such rates would to some degree be comparable to the low-speed ("petite vitesse") rates in France; and sanguine Chairman Eastman calls them "new to me and intriguing." But grumpy Commissioner Porter sees them "a vain attempt to bolster the argument for trainload rates."

●

WHAT CAN WE BELIEVE?: We are being urged to national unity in the defense effort and in aid to Britain—which is a patriotic necessity if the military danger to our country is as great as our leaders say it is. But what are we to think when they also call on us for equal self-sacrifice in behalf of such a partisan and special-privilege venture as the St. Lawrence Seaway? If there is such an urgent need for ships and planes and tanks—then where do we get off wasting labor and capital on a long-range waterway and power venture which is wholly lacking in disinterested support? If they dissemble and fake—as every informed person knows they are doing—at such a serious time as this in order to jam through the St. Lawrence Seaway, how can we accept their assurance about the "terrible urgency" of other measures they recommend? The boy who cried "Wolf!" when there was no wolf lived to regret his trifling with a serious matter.

●

Our Own Adolph: Adolph Berle, assistant secretary of state, has great resources of intellectual and moral power—when he sees fit to use them. It is not the Dr. Jekyll side of this official, though, which is in the ascendant in the campaign he is carrying on in behalf of the St. Lawrence Seaway. In this, he is adhering to the New Deal "party line," let logic, fact and candor fall where they may. For instance, he delivered himself of a disingenuous radio speech last week in which he attacked the railroad and utility "lobby" allegedly working selfishly to defeat this project. This from a politician whose advocacy has nothing more substantial to fall back upon than the scientifically-contemptible "study" by "experts" of the Department of Commerce—research which proceeds from a conclusion to carefully-selected supporting facts. No, Professor, as an uneasy conscience doubtless continually reminds you, decent and independent scholarship is not with you in this national-socialist enterprise.

●

REPORTS TO EMPLOYEES: Princeton University's School of Public Affairs has made a study of practices of 525 large corporations in reporting their activities and finds that, of that number, only 35 issue special reports to employees written in terms that the latter can easily understand. Which prompts the Wall Street Journal to observe: "Perhaps if more than 35 among the large corporations had issued well prepared reports to employees the current disputes between management and labor would not have reached so serious a stage."

●

NEW LAW ON RATES: An examiner has recommended adversely on a Fourth Section application to enable the railroads to compete with water lines for iron and steel moving from the Birmingham area to New Orleans. The denial is based on the declaration of policy in the 1940 Transportation Act calling for "sound economic conditions among the several carriers," the examiner believing that the railroads would suffer a loss in gross revenue on all the traffic coming under the proposed reductions.

●

BIG TRAFFIC RISE SEEN: In the second quarter, carloadings are going to run almost 15 per cent greater than in the comparable period of 1940, in the opinion of the Shippers' Advisory Boards, whose estimates by regions are given in the news pages herein. Biggest increase, 29 per cent, is looked for in the Northwest and the smallest, 7 per cent in the Trans-Missouri area.

CAPITAL OUTLAY UP: In 1940 the railroads invested 429 million dollars in capital improvements, which was 64 per cent more than in 1939 but less than half the outlay for betterments made in 1930. Detailed figures, by years, since 1930 are given in the news pages herein. Since such expenditures are the only means whereby the railroads can keep their services sufficiently modern and economical to hold traffic in a competitive era and thus keep on providing jobs, an increase in these expenditures is news of the greatest importance to railroad employees, no less than to other members of the railroad family. How many employees, though, understand the vital significance to their welfare of substantial outlays of new capital? How many of them know what the conditions are which are necessary to maintain an ample supply of new capital? Whose duty is it to give them such information?

●

FORWARDER BILL: The Senate forwarder bill, S. 210, has been passed by that body, while hearings have been concluded on the House bill. Walter Franklin testified that the Pennsylvania is not opposed to forwarder operations, but it wants to sell its l. c. l. service directly, since it has found that such is the more profitable way of handling it. The existence of the forwarder, he went on to say, can be attributed "almost entirely" to past methods of rate-making, which are now under revision. When the forwarder speaks of his "service," Mr. Franklin continued, it is efficient service by the railroads that he is talking about. Frank W. Robinson for the U. P. felt that forwarder operations had been beneficial to the railroads, but he joined the other carriers in their insistence that the roads themselves want to handle l. c. l. traffic wherever they can get it.

●

SEA-GOING CRANES: Ingenuity in the adaptation of old tools and materials to meet constantly new situations seems to be the primary characteristic required of railway engineers. In yet another instance of how this quality serves to get railroad work done quickly and at low cost an article herein describes a pier-building job by the Baltimore & Ohio which utilized a number of ingenious expedients, among them the one mentioned in the caption of this paragraph.

●

INVENTORY RATIO: Inventories are up—but surprisingly little when increased use of materials is taken into account. Inventory ratio to operating revenues in 1940 was the lowest in 30 years, except for 1936. Details are related, and given in tabular form, in an article elsewhere herein.

●

DITCH INDICTMENT: A quick and conclusive survey of the principal outrages against the national economy and the national defense which are contemplated in the St. Lawrence project is given in a booklet "For National Defense?" published by the National St. Lawrence Project Conference, 808 Seventeenth St., N. W., Washington, D. C. Every railroad man should have a copy.

"FREIGHT TONNAGE FOLLOWS PASSENGER TRAFFIC!"

Every Electro-Motive Diesel powered passenger train in America is making a satisfactory net profit

GM DIESEL FACTS

ELECTRO-MOTIVE CORPORATION
SUBSIDIARY OF GENERAL MOTORS LA GRANGE, ILLINOIS, U. S. A.

RAILWAY AGE

Uncle Sam vs. Railroad Employees

The employees of the American railroads are not an army, in the military sense, but the dangers which face them are comparable to those which confront an army. That is, the lives of railroad men are not under attack by hostile forces, but their jobs on the railroad are certainly under fire. And while, also like an army, they can protect themselves to some degree individually, their greatest dependence for safety must be on their ability to act in unison under competent leadership.

Uncle Sam, Destroyer of R. R. Employment

An army can lose a war in at least two ways: First, by its own inefficiency (through bad leadership or bad "followership" or both); second, because the forces of the enemy are overwhelming (either through superior efficiency or sheer magnitude). In weighing the possible outcome of the "war" between railroad employees and the forces working against their employment, it is necessary to locate the enemy and evaluate his probable effectiveness; and to contrast this estimate with a similar estimate of the strength of the employees. Once this comparison has been made, the next step is to contrive means whereby the employees' position may be strengthened and that of the enemy weakened.

The principal force hostile to employment, present and future, on the railroads, is the action of the government of the United States; and secondarily of the state and local governments. That is to say, the force which has made the tenure of railroad jobs insecure is the enormous and growing competitive transportation plant built by the state and federal governments—and offered free or at charges less-than-cost to the railroads' potential customers. Trucks and barges in private ownership are not the force which is curtailing railroad employment—such vehicles are merely the **beneficiaries** of government transportation plant offered for use at less than a compensatory rate.

That our governments and their expenditures have been, and still are, the influences abnormally curtailing railway employment can be demonstrated by a few facts. There is no accurate measure of the current total volume of production and commerce in this country, but, considering all the indices, it is the consensus of informed opinion that thus far in 1941 the total production and distribution of all commodities have been at as high or a higher rate as in the first quarter of 1929. Throughout the first eleven weeks of the year, however, the number of freight cars loaded ranged from 21 to 26 per cent less than in 1929, and averaged 23½ per cent less. This shows the railroads are getting a smaller portion of the country's total traffic than in 1929; and in 1929 they already were getting a smaller portion of it than ever before. Why this persistent decline in the railroads' portion of the traffic? It is due to government policies favoring other carriers in their competition with the railways; and much the most important of these policies is the subsidization of other carriers by providing them with facilities for the use of which none of them pay the equivalent of cost, and many pay nothing at all.

There Ought to Be 250,000 More Men Working

What is the effect on railroad employment? Statistics of the Class I railways (excluding switching and terminal companies) are available for only the first two months of 1941. The average number of employees in the first two months of 1929 was 1,576,846 and in the first two months of 1941 was only 1,024,008. In the first quarter car loadings were 23½ per cent less than in 1929 and in the first two months employment was 35 per cent less. A substantial part of the curtailment of employment was due to the increase in efficiency of operation, which always went on before the railways became subject to so much government-aided competition, and has continued since. But if the railroads had had as much freight business in proportion to the country's total volume of business as in 1929 their freight traffic would have been 31 per cent larger than it was—to say nothing of the effects of government-aided competition on their passenger business. In that case they would probably have afforded employment thus far in 1941 to 250,000 more men than they have. In view of the plain facts, it is surprising how few railway employees seem to realize that the government is the principal menace to their jobs, and still more surprising how few railway labor leaders seem to realize it.

There are two ways of attacking an enemy—one, by weakening his effectiveness and the other by increasing that of one's own army. Railroad employees have great power to diminish the effectiveness of their enemy, in that they have a great potential voice in determining governmental policies with respect to the construction of transport plant; and in levying com-

pensatory charges for the use of such plant, once it is constructed.

By and large, it must be said that this power of railroad employees has not been used very effectively to control the encroachment of non-compensatory transportation plant on railroad jobs. The leaders of the employees have protested at excessive governmental expenditures for such purposes—but they have seldom advised their followers, for that reason, to vote against politicians who favor such measures. A politician has been proclaimed a "friend of railroad labor" or an "enemy"—not in accordance with his vote on transport plant competitive with railroad jobs, but largely, if not solely, on his record on intra-railroad controversies. That is to say, the railway labor leaders have endorsed for election politicians who might almost be called notorious in their support of transportation expenditures calculated to ruin railroad employment; while they have withheld their endorsement from legislators who have been most conservative in their attitude toward socialized transportation in competition with railroad jobs.

Unions Denounce Seaway with Words, Favor It with Votes

For example, most of the railway labor organizations gave their endorsement to President Roosevelt for re-election, despite the fact that they knew he was going to press forward the St. Lawrence Seaway. So when the labor organizations protest about the Seaway, Mr. Roosevelt doubtless says to himself, "I will ignore these boys on this question, and I will keep them in line by giving them something against their own employers. As a politician, I am not touched by harsh words. I am concerned only with votes. As long as the boys keep on voting for me anyhow, why should I worry about their complaints?"

And Mr. Roosevelt, if this is the way he thinks, is quite right. If the railroad employees and their families (and employees of other industries, such as the coal mines, who will be injured by the St. Lawrence venture) had not voted for him last fall, he probably would not have been elected. If he had not been elected, the St. Lawrence project would not have been revived. This is a safe conclusion, because it is inconceivable that Mr. Willkie with his private-enterprise philosophy would approve such a project as the St. Lawrence canal, even under normal conditions. And no man with practical business experience and an honest mind could favor such a long-run scheme as this at a time when military necessity requires that all our productive capacity be used for **immediate production.**

The "war" of the railroad employees for the protection of their jobs may be said, therefore, to have been nearly lost by their failure to use their legitimate political power to weaken the assault of the enemy (i. e., socialized transportation) against them. We say "nearly," because, even now, it might still be possible to save the day if railroad employees and coal miners and other workingmen whose jobs will be ruined by this scheme would convince the politicians that no man who votes for this project is ever again going to get a laboring man's vote, no matter what his attitude may be on so-called "labor" legislation. If the St. Lawrence project goes through, it will not be because of the inherent strength of the "enemy," but because the leaders of the opposing army let the enemy know that only blank cartridges were being used against him.

Votes Not Used to Oppose Assault on Jobs

The "war" against railroad employees' jobs has thus lost ground, so far at least, by failure to exert the full force of the employees' potential power in determining the enemy's course of action. There is no doubt of the sincerity of the desire of the individual employee to use his vote to protect his job, nor of his dislike for the recent enormous increase in socialized transportation—but he still has confidence in his "generals"; and as long as they tell him that a politician who gives unions favors over railway management is to be preferred to one who opposes socialized transportation, the employee's vote is immobilized, as far as its job-protecting power is concerned.

The dangerous and disheartening situation in which this policy has placed the average railroad employee (who looks ahead to the end of the present emergency) could be very quickly rectified by a change in union policy, and a sincere warning to all politicians that those who vote for unwarranted expansion of socialized transport plant and a reduction in the charges for the use of such plant in proportion to its value, will henceforth be deemed (by vote and not merely by word) as unfriendly to railway labor.

Why the Railroad "Army" Finds the Going Tough

So much for the strength or weakness of the "enemy" as affecting the position of railway employees in the "war" to hold their jobs—what now about the efficiency of their own campaign? Railroad jobs are held or lost, largely, to the degree which the railroads are able to hold their traffic. The magnitude of the socialized transport in competition with the railroads has its effect on the volume of railroad traffic and employment—but railroad costs also have their bearing on that issue. If an arbitrary rule requires five men on a branch-line train when two men could do the work, the result may be that the railroad has to keep its rates so high that socialized competitors take away the traffic; and that eventually the branch-line train has to be pulled off, and all five men lose their jobs (whereas two at least of them might have been saved).

We wonder where the commander of an army would get in a war, if he had such rules as these to follow:

(1) Never risk the life of one man to insure the safety of ten. Instead, protect the one and risk the ten.

(2) If you have food sufficient for 1,200 men, increase the ration of 1,000 by 20 per cent and let 200 starve.

(3) If you are using men and materials to hold locations of no strategic value to you, nevertheless you must keep the men and materials on these insignificant assignments—even if you are short of men and materials in places of strategic importance.

Ordinary common sense indicates that an army encumbered with such rules would find itself at a tremendous disadvantage in meeting an enemy of any force whatsoever. Yet every one of those rules has its analogue on the railroads. We have repeatedly shown in these pages that railroad wages tend to remain constant at a ratio somewhat in excess of 47 per cent of gross railway revenues. It follows, therefore, that every man required by rule or law who performs no necessary or useful work for his pay, represents no net gain to labor. Rather, he deflects wages from men whose services might be utilized to increase traffic. And, if traffic is not increased as it might be by the most efficient employment of labor, that means just that many fewer jobs. In other words, by being compelled to employ unneeded men, the railways are not benefiting railway employees as a whole; but are being forced thereby **to deny employment to a larger number of useful employees** (analogous to the condition cited in paragraph (1) above).

Since the total amount paid out in wages by the railroads averages around 47 per cent of total railway revenues, an increase in wage rates does not improve the lot of railroad employees as a whole (unless business is increasing rapidly); it merely forces the railroads to lay off enough men so that a pre-determined sum available for wages may be distributed among a smaller force (as in paragraph (2) above).

There are consolidations which might be effected, and facilities which are expensive to operate which might be abandoned, and these savings passed on to shippers in competitive situations—thereby holding their traffic and protecting railroad employment as a whole. But "dismissal pay," and now the effort to require the retention of employment for employees of abandoned branch lines, diminish the savings to be made by such abandonments, and hence reduce the amounts which can thereby be passed on to shippers in order to hold their traffic. (Such a condition bears comparison to that outlined in paragraph (3) above.)

Protects Favored Ones, Endangers the Whole Group

It seems obvious, on reflection, that the railroad employees' "army" has accumulated a lot of "red tape" which was not dangerous in a time of peace (that is, prior to the time when there was any considerable amount of socialized transport competition)—but which is a very serious impediment at such a time of real conflict, as the present. This "red tape" picks out individuals here and there for special consideration. That it serves them, no one can deny. But it does so only at the risk of the safety of the whole fraternity of railroad employees. When a real war is on, the individual must be willing to subordinate his special favors to the extent necessary for the effective defense of the body as a whole.

It is often said, with such great truth that it can do no harm to repeat it, that the railroad employees of this country constitute one of the finest groups of citizens that we have. There can be no doubt of their good intentions, as a body, to each other, to the railroads and to their country. But the railroad business is not going well; and the future of all these men is under a cloud. And the reason for this condition is that power to make decisions regarding the railroad industry has largely been removed from the hands of railroad managers who, so far, are the only group who have been given knowledge and experience sufficient to enable them to make such decisions wisely. This power has to a very large degree gone into the hands of railroad employees (both as union members and as voting citizens). There has as yet been no systematic effort to provide these new "managers" of the transportation industry with the fundamental information which they require to make far-seeing policies for this industry. That is why the situation of the railroads continues to be unfavorable (from the employees' point of view, no less than from that of others).

Disinterested Information Needed by Policy-Makers

People who make decisions of policy, to do their job intelligently, need unbiased information—not just selected facts hustling them toward action which may gain a dollar today only to lose ten tomorrow. How many well-intentioned railroad employees are now supplied with the facts necessary to enable them to arrive at sound conclusions about railroad policy, **even in their own long-run interest?** Whose duty is it to give them such information?

No Appeal for the Stockholders

The Interstate Commerce Commission, or at least a majority of it, is following through in its now well-established policy in railroad reorganizations of wiping the slate clean of all equity influence. Recently, by a seven to four majority it ruled that no funds of a bankrupt estate may be advanced to stockholders to prosecute an appeal to a higher court on the merits of a final plan of reorganization by the commission.

On February 19 the commission made public a decision in which a majority of seven commissioners sided with a majority of Division 4 in affirming the latter's decision to refuse to set the maximum limits which a federal district judge in Chicago could utilize in allowing the completely frozen-out stockholders of the Chicago & North Western to have funds from the debtor's estate to effect an appeal on the plan to the Circuit

Court of Appeals. Commissioner Porter wrote a strong dissent, joined by Commissioners Aitchison and Alldredge, while Chairman Eastman also felt that justice had gone awry and said so.

Quite aside from the ethics of the commission's policy and the practical danger of thus discouraging further equity financing, the commission now goes further and does its best to close the door on any review of the justice of its findings. The law provides that the commission shall fix the maximum limits within which the judge "may make an allowance to be paid out of the debtor's estate, for the actual and reasonable expenses (including reasonable attorney's fees) incurred in connection with the proceedings and plan by parties in interest." It is the position of the majority that the commission should not attempt to assess the value of an appeal until that value is actually known. Some slight ray of hope is given to the condemned stockholders in the words of the majority, pointing out that the commission's order is "without prejudice to renewal of petition at such time as petitioner is prepared to show actual expenses incurred and the resulting benefit to the estate."

Commissioner Porter takes the majority to task for its hard-boiled attitude, pointing out that although in this case the stockholders have been, or may be, fortunate enough to obtain counsel who will be willing to take a long chance on ever getting paid, "it is not difficult to foresee a situation where the parties might not be so fortunate and thus be prevented from having the Appellate Courts pass upon what we have done." The commissioners would do well to read Dean Pound's article, mentioned heretofore in these pages, on the danger that this country faces of slipping into despotism, through the curtailment of court review of decisions of administrative agencies.

Does It Pay to Fool the Public?

In condemning the Interstate Commerce Commission decision in the Kansas City Southern Transport Company, Inc., Common Carrier Application, MC-61438, the so-called independent motor carriers are imputing to the decision more than it said. The decision does not, as is inaccurately alleged, give the railroads "carte blanche to engage in motor vehicle operations without restraint."

In substance, all the Commission said was that the railroad had the legal obligation to serve the communities along its line, and that it would not be in the public interest to deprive it of the right to serve them by the most efficient methods. Ample protection is afforded the independent truck operator. The particular "independent" motor carriers which now happen to be operating on the highways have not, as some of them appear to believe, been given a monopoly of transportation on the highways; nor have they always conducted their operations in a manner to cause the public to desire that such a monopoly be conferred upon them.

Some of them have been reported to pay "retainers" on a widespread scale for legal services, seemingly of a rather indefinite character—apparently with the hope thereby of influencing legislation, or perhaps of mitigating the zeal of enforcement of regulatory statutes. Many truck operators seem obdurately determined to resist control by the duly constituted authorities. One company was fined over 140 times in two months for violation of police regulations. The ordinary motorist using the highway knows from his own experience how frequently the trucker (there are honorable exceptions) occupies the road as if it were his personal property. Such practices do not generate public esteem for the interests which resort to them.

Moreover, these truckers who demand so much have flagrantly ignored their pledge to Congress to give the public the benefit of the "economy and flexibility" of highway transportation.

Notwithstanding their claim that trucking was over-expanded in 1935, and that regulatory law was necessary to correct this condition, they have since created an uneconomic monopoly situation which has led to a further expansion of more than 50 per cent in their operations. This expansion has been paralleled and induced by monopolistic rate increases. Such hot-house overexpansion has thinned the density of and impoverished all forms of transportation, and occasioned a general increase in freight rates by all of them.

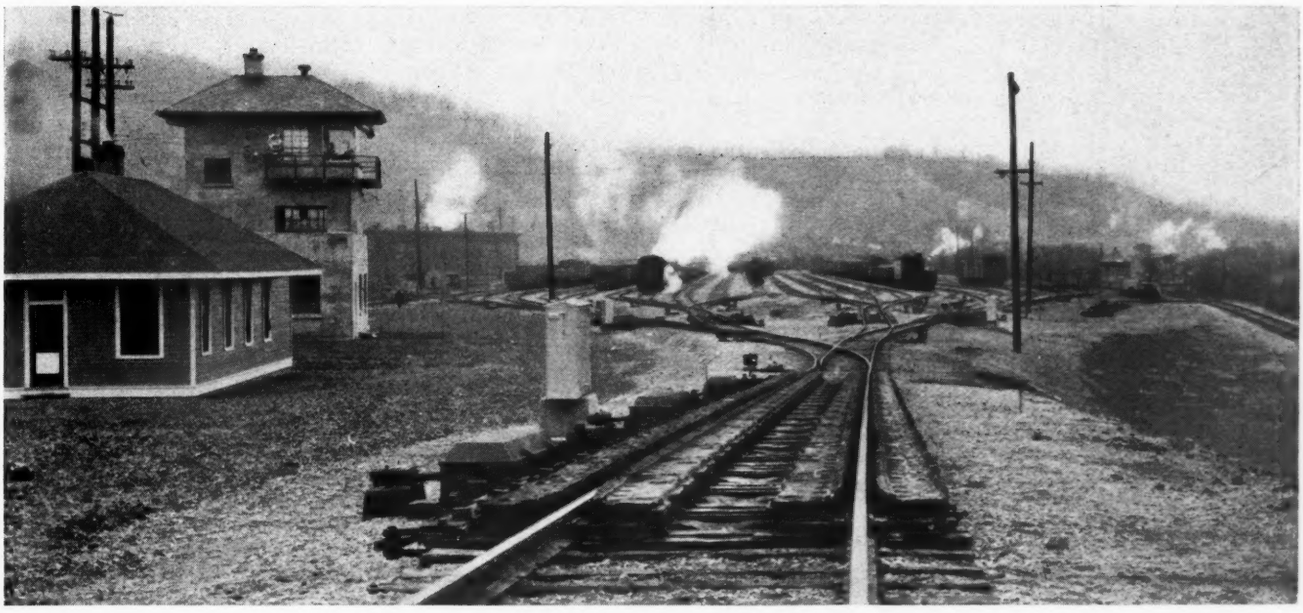
Favorable public relations are not to be bought merely by the expenditure of money for advertising and propaganda. They must be bottomed on public confidence, which arises from honest and neighborly dealing with the public.

Private enterprise in this country is on the spot as it never has heretofore been in history. With the 1929 debacle, public confidence in business leadership rapidly declined. Since 1932 this confidence has had a hard time reasserting itself, because hundreds of cynical and able political enemies of free enterprise have been carrying on ruthless and malicious propaganda against it. And every dereliction of business has been magnified a thousandfold in popular recognition.

Only a soundly-informed public opinion—given honest facts upon which to base its decisions—can rescue the enterprise system (and American freedom itself) from the precarious position in which it now finds itself.

Is this any time for any segment of the enterprise system, as it values its own continued free existence, to add to the public confusion which the enemies of economic freedom are so sedulously fostering? It should not require a high standard of morals—but merely enlightened selfishness—for business interests to see that to disseminate economic falsehoods and malicious insinuations now is to sow dragons' teeth.

There is a plain and simple issue of ordinary truth here, based upon recognized fundamentals of economics and decent business behavior. Honesty is still the best policy.



General View of Classification Yard Looking Down the Hump With Control Tower to the Left

L. & N. Reconstructs Yard and Installs Car Retarders

Lengthens tracks and installs power equipment to increase switching capacity and reduce operating expenses

AT DeCoursey, Ky., 7 miles south of Cincinnati, Ohio, the Louisville & Nashville has reconstructed and enlarged its northbound classification yard, and has installed power switches, car retarders, communication systems, flood lighting, electric snow melters, and special office machines, as a means of increasing the capacity, facilitating the classification operations and reducing the operating expenses.

This yard is the most important terminal for northbound freight traffic on the Louisville & Nashville. One main line extends from Atlanta, Ga., northward through Knoxville, Tenn., to DeCoursey and Cincinnati. Connecting lines from extensive coal fields in Eastern Kentucky join this main line at Corbin and Winchester. Other lines of the L. & N. from New Orleans, La., through Birmingham, Ala., and Nashville, Tenn., and from St. Louis, Mo., converge at Louisville Ky., from which point they extend to Latonia, Ky., on the south side of the Ohio river opposite Cincinnati and 3 miles north of the DeCoursey yard.

All freight traffic of the L. & N. inbound to the Cincinnati area is, therefore, classified at DeCoursey for delivery to industries or to connecting railroads. Approximately 12 northbound trains, averaging 100 loaded cars each, are received daily from the Knoxville line, about 95 per cent of which is coal, although two of these trains include approximately 10 cars each of perishables and other light-weight commodities. An average of eight trains are received daily from the Louisville line, this traffic being mostly agricultural and manufactured products in box cars.

As no coal is mined on Sunday, the traffic moving through DeCoursey is lighter on Monday and Tuesday, but from Wednesday through Sunday of each week, an average of 1,500 to a maximum of 2,400 cars are received and classified each 24 hours. Seven classifications are made for deliveries to connecting railroads, and six classifications are made for L. & N. deliveries to industries in the Covington, Ky., and Cincinnati, Ohio, areas. Approximately 35 crews, half of which are L. & N., are required to transfer cars from DeCoursey yard to other railroads and to industries. No departure yard is needed, each transfer locomotive pulls its cars directly from one of the classification yard tracks, and the caboose is "dropped" on from an incline track at the north end of the yard.

Tracks Lengthened and Grouped

The yard tracks lie in practically a north and south direction with the hump end to the south. In general, the yard is adjacent the west bank of the Licking river, with the northbound main track between the yard and the river. In the previous classification yard, there were 17 tracks but they were all comparatively short, the maximum capacity of any track being about 64 cars, and the total capacity was 869 cars. In the area down the hump incline, the various tracks were connected by turnouts to one of two ladder tracks that extended down either side of the yard. The switches were hand-operated, and car riders were employed to bring the cars to a stop on the classification tracks. In order to increase the capacity of the classification yard, the new hump was located about 600 ft. south of the old hump, the tracks were

lengthened accordingly and three tracks were added. The total capacity of the 20 classification tracks now provided is 1,223 cars.

Instead of using a ladder track arrangement, the tracks are now connected in four groups of five tracks each, and each group is served by a separate lead, the four leads being connected through switches to the one track down the hump. This grouping arrangement accomplishes several desirable results. One set of retarders on each of the four leads serves the five tracks in its respective group, and these four sets of retarders, with the fifth group on the main lead down the hump, make a total of only five retarder locations.

Each track group includes a lap switch layout, which includes two turnouts, one to the right and another to the left from straight track, with one leading the other by 29 ft., the distance between their points of switch. The switch points of both turnouts are 16 ft. 6 in. long and their frogs are No. 8. The extra frog required in the layout at the intersection of the lead rails of the turnouts is a No. 6, and is located with its point 10 ft. 6 in. ahead of the point of the frog of the leading turnout. The purpose of the lap switch layout is to get the switches closer together so that a car on one route will get into the clear more quickly, and, therefore, a following car destined for another track in the same group can be spaced more closely. The track grouping arrangement and the use of lap switches permit all the yard tracks to be more nearly the maximum length than is possible with a ladder layout.

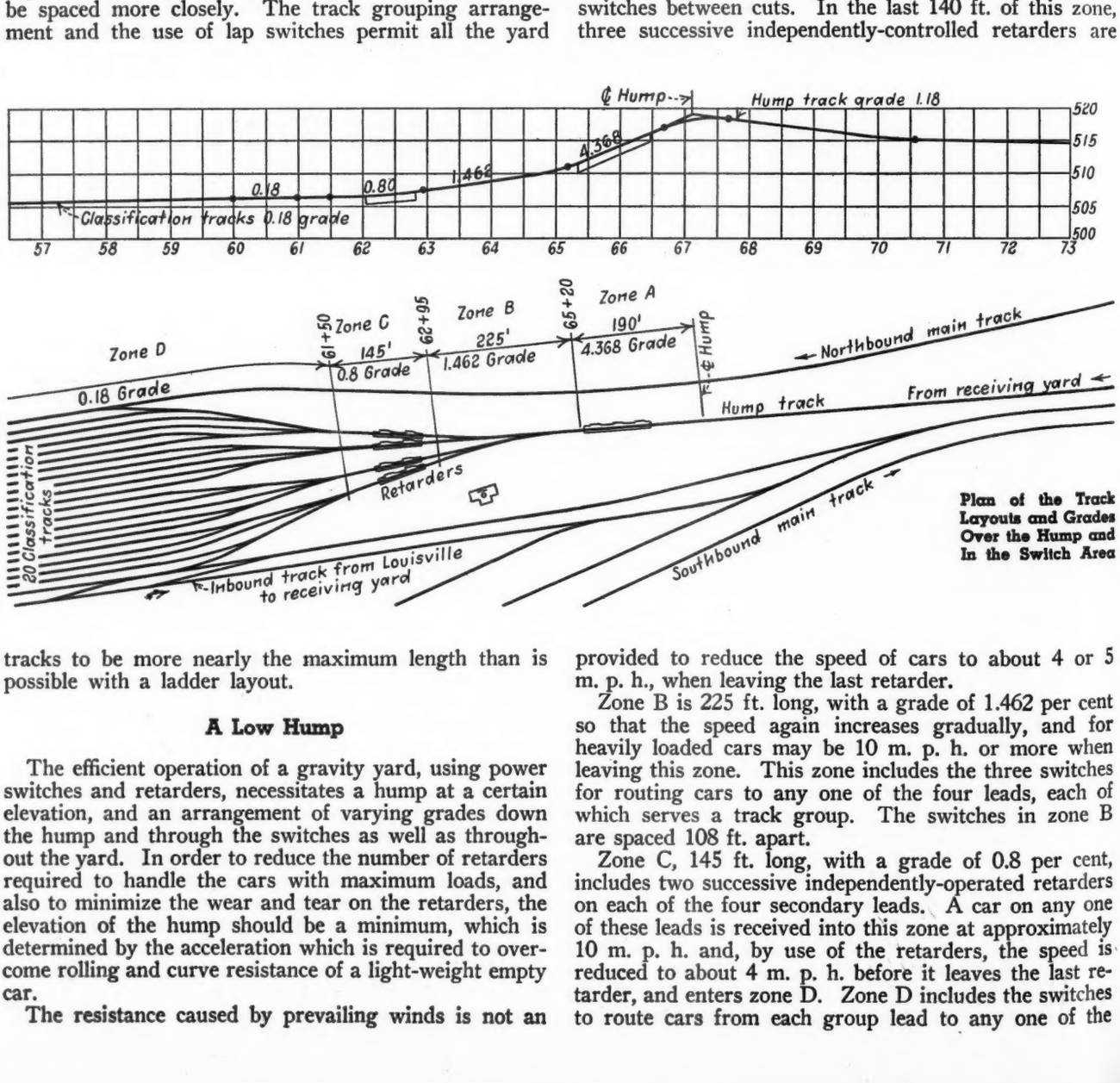
A Low Hump

The efficient operation of a gravity yard, using power switches and retarders, necessitates a hump at a certain elevation, and an arrangement of varying grades down the hump and through the switches as well as throughout the yard. In order to reduce the number of retarders required to handle the cars with maximum loads, and also to minimize the wear and tear on the retarders, the elevation of the hump should be a minimum, which is determined by the acceleration which is required to overcome rolling and curve resistance of a light-weight empty car.

The resistance caused by prevailing winds is not an important factor here because this yard is located in a valley between ranges of high hills. Furthermore, approximately 90 per cent of the traffic consists of loaded coal cars averaging 75 tons, and the remainder are box cars loaded with agricultural or manufactured products, few empty cars being classified in this yard. In consideration of these facts, and to accomplish the results mentioned previously, the hump was so constructed that, in the first 560 ft. from the crest to the points where yard grades start, the difference in elevation is only 12.74 ft. The center line or crest of the hump proper is on a vertical curve of 100 ft. In approach to this crest from the south, there is 200 ft., i. e., about six car lengths, of 1.18 per cent ascending grade northward, which is provided to permit cars to be uncoupled easily.

Four Grade Zones

The cars pass over the hump at about 4 m. p. h., although this speed can be increased if several cars are included in each cut. The average is 60 cuts per 100 cars. In zone A, from the crest of the hump 190 ft. down the main lead, the grade is 4.368 per cent. In the first 50 ft. of this zone, acceleration is rapid, so that the spacing between cars or cuts of cars is increased, this spacing being necessary to permit operation of the switches between cuts. In the last 140 ft. of this zone, three successive independently-controlled retarders are provided to reduce the speed of cars to about 4 or 5 m. p. h., when leaving the last retarder.



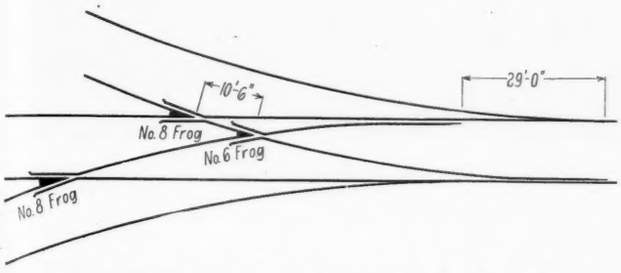
Plan of the Track Layouts and Grades Over the Hump and In the Switch Area

Zone B is 225 ft. long, with a grade of 1.462 per cent so that the speed again increases gradually, and for heavily loaded cars may be 10 m. p. h. or more when leaving this zone. This zone includes the three switches for routing cars to any one of the four leads, each of which serves a track group. The switches in zone B are spaced 108 ft. apart.

Zone C, 145 ft. long, with a grade of 0.8 per cent, includes two successive independently-operated retarders on each of the four secondary leads. A car on any one of these leads is received into this zone at approximately 10 m. p. h. and, by use of the retarders, the speed is reduced to about 4 m. p. h. before it leaves the last retarder, and enters zone D. Zone D includes the switches to route cars from each group lead to any one of the

five yard tracks in the corresponding group. The grade in this zone is 0.18 per cent, compensated for curvature through the turnouts.

From the clearance points northward, the grade on the yard track is 0.18 per cent descending, which is non-accelerating and just enough to keep the cars moving at the speed of approximately 4 m. p. h. at which they left the last retarder. At this speed, cars can be bumped



Plan of Track Layout Through a Set of Lapped Switches

with those already on the track, without damage to equipment or lading. At the far north end, the grade ascends slightly for a short distance as an aid in stopping cars. The first car sent into each track is stopped at the proper place by a stake placed by a ground man. Obviously the successful operation of this yard necessitates that the tracks be maintained at the grades for which they were designed. For this reason, permanent metal grade stakes have been installed, and the grades of track will be checked frequently.

Retarders and Power Switches

The retarder location on the main lead down the hump includes three abutted retarders, and the location on each of the four leads to separate track groups includes two retarders. Each retarder is 38 ft. 6 in. long, on both rails, so that there is a total of 847 rail feet of retarders. Each retarder is operated by a mechanism which is driven by a 220-volt d-c. motor. When in the non-retarding position, the brake shoes are open approximately 6¾ in. A retarder can be closed to four different positions to effect increasing pressure and resultant retardation. The yard is equipped to retard a 100-ton car to a stop in the retarder in zone C, and it is possible to stop the average car in the retarders in zone A. If the wheels of a truck are lifted out of the brake shoes, the wheels will be rerailed automatically. Springs, which back up the brake shoes, provide adjustment automatically for wheels of different thicknesses, and equalization provides the same pressure on the inside and outside portions of the wheels.

Each of the electric machines for operating switches is equipped with a 110-volt d-c. motor which will operate a switch in less than 2 sec. These switch machines are of a special design, so arranged that if a switch is trailed through during a trimmer switching operation, the switch will be operated to the opposite position automatically and remain in that position until the leverman restores it.

At each switch, a track circuit includes the length of the switch points and 28 ft. in approach to the facing points. The track circuit is just long enough so that, with a maximum length freight car, the wheels of one truck or the other will occupy the track circuit until the car is clear of the switch. As soon as a car occupies the track circuit, the switch is locked and cannot be thrown until the car leaves the track circuit. However, if the lever has been thrown and the switch is in operation when a car occupies the track circuit, the switch will continue its movement to the position corresponding to that of the lever. Therefore, a switch cannot be stopped in mid-stroke. As indications to be watched by the engineman of the trimmer locomotive, a color-light switch target is located at each switch. A green aspect indicates that the switch is in the normal position, which in all cases is with the left point closed. A yellow aspect is displayed when the switch is reversed.

Control From One Tower

The 11 retarders and 19 power switches are controlled from one machine in a tower to the west of the main leads. The levers are arranged in a sloping panel facing the operator seated on a stool. The retarder levers, in the upper portion of the panel, stand normally in the raised position, and are pulled toward the operator to control the retarders to provide the four increasing degrees of retardation. The switch levers, in the lower portion of the panel, are normally in the raised position to control the corresponding switches to the normal position, and are pulled to control the switches to the reverse position. Green and yellow indication lamps above each switch lever indicate the position of each corresponding switch.

The power switches, retarders, control machine and system of power supply for these facilities were furnished and installed under contract by the General Railway Signal Company.

The foundations, floors, walls and roof of the control tower were constructed of monolithic reinforced concrete,

View Showing the Power Switches at a Lap Switch Layout

poured in place. In addition to the main three-story and basement structure, which is 13 ft. 6 in. by 24 ft., the building includes, at ground level, a battery room 12 ft. 6 in. by 14 ft., to the south; and a work shop, 12 ft. 6 in. by 14 ft., to the north.

The floor level of the operating room is 25 ft. 4 in. above the track level. The track side and a portion of each end of the operating room consist of plate glass windows which are held in place by metal strips. This construction provides an unobstructed view of the hump and the entire retarder and switch area, as well as practically all of the south portion of the classification yard.

Yard Signaling

A color-light signal at the hump, faces toward the receiving yard, displays aspects for the direction of the engineman of the locomotive pushing cars over the hump. As this signal cannot at all times be seen the full length of the receiving yard, two repeater signals, which display the same aspect, are located 540 ft. and 5,056 ft., respectively, from the hump. These signals are controlled by

a lever in a small machine at the humpmaster's station at the hump. An aspect of one "green" means to "hump fast," which normally is about 4 m. p. h., in other words, five to six cars per min. An aspect of "yellow-over-red" means "hump medium," which is at the rate of about 3 cars per min. An aspect of "yellow" means "hump slow," which is at the rate of about 2 cars per min. The "hump medium" and "hump fast" aspects are used when the average is 3 or more cars per cut. The aspect of one "red" means Stop, and the aspect "red-over-red" means to back up.

A signal at the hump is faced northward toward the classification tracks for directing the operation of a locomotive when trimming. An aspect of green on this signal means that humping operations have ceased, and trimming movements can be started. An aspect of red means that the trimmer locomotive is to leave the yard or get into the clear preparatory to the starting of humping operations. This signal also is controlled by the humpmaster.

Humpmaster to Engineman Telephone System

The wayside signals for directing the operation of the hump locomotive are sometimes obscured from the view of the enginemen by dense fogs, which are prevalent for extended periods in this river valley. For this reason and also as a means for direct communication, a one-way telephone system has been provided so that the humpmaster can talk to the engineman. A transmitting microphone, and a foot-switch used when talking, are located at the humpmaster's station at the hump. A loud-speaker and a signal which displays either a green or a red light are located in the locomotive cab, facing the engineman. The green lamp is lighted normally, not only to indicate that the system is operating properly but also that the instructions last received are still in effect.

When the humpmaster wants to give different instructions, he places his foot on the switch and speaks into the microphone. When he steps on the switch, the green lamp in the locomotive is extinguished, the red lamp is lighted, and a bell rings for 1 sec. as a warning to the engineman that he should listen for new instructions. When the humpmaster has given the instructions, he removes his foot from the switch and then, in the locomotive, the red lamp is extinguished and the green lamp is lighted. If the humpmaster wants the locomotive to be stopped, he throws a toggle switch on the microphone stand, which causes both the red and the green lamps in the locomotive to be extinguished, which is an indication to the engineman to stop at once and wait for further instructions.

The communication is accomplished by using 5,700-cycle carrier current energy which is modulated by the voice frequencies in the transmitter and then connected to the rails, where it is picked up by a receiver coil on the locomotive, then amplified for operation of the loud-speaker as well as the lamps and bell. At the hump station, the transmitting equipment for the communication system is housed in a sheet-metal cabinet. This equipment includes a vacuum tube oscillator to provide the 5,700-cycle carrier current, a push-pull modulator, and two stages of amplification before the power is transmitted to the track and to the line wire.

On the locomotive, the receiver is located on the deck of the tender, the amplifier is on a shelf back of the cab, while the signal selector unit, the loud-speaker and the lamp units and the bell are in the cab. All of this locomotive equipment is portable and can be transferred from one locomotive to another. Two locomotives are equipped, although ordinarily only one locomotive is needed for pushing trains over the hump. This communication system was furnished by the Union Switch & Signal Company.

Cars Passing Over the Hump Incline and Through First of the Retarders

A telephone system with a loud-speaker and transmitter at each station connects the humpmaster's station and the retarder operator's room. The loud-speakers are connected on the line at all times. When any person wants to speak to the other station, he presses his foot on a switch and asks for attention. For example, if cars are coming too fast or not fast enough, the retarder operator can tell the humpmaster at once. If a yard track is filled and additional cars for that classification must be switched to another track, this matter can be determined at once by telephone conversation.

Floodlighting

In order that all parties concerned, and especially the retarder operator, can see the locations of cars during the hours of darkness, a complete system of floodlighting was installed. A steel structure tower 93 ft. high, located just west of the hump, carries eight 1,500-watt lamps which are directed down toward the retarders and classification track areas, and also a similar unit with four 1,500-watt lamps is directed toward the receiving yard. On a second tower at the north end of the classification yard, five 1,500-watt lamps are directed to the classification yard. The intensity of illumination at track level is adequate to permit one to read a newspaper. At three locations, separate 500-watt units are provided as a spotlight for reading car initials and numbers. These various lighting units were furnished by the Pyle-National Company.

Snow Melters

In order to prevent interruptions of yard operation during snow storms, each of the switches, which are power-operated, is equipped with an electric snow melter. Each unit consists, essentially of a straight nickel-silver tube, 5/8 in. in diameter flattened to about 1/2 in., which houses a coiled nickel-chrome wire which is centered in magnesium oxide. The heating element is 15 ft. long and provided with a non-heating terminal 1 ft. long on each end, giving an overall length of 17 ft. These units are known as "Corox" and were made by the Westinghouse Electric Manufacturing Company. One such tubular unit is attached to the gage side of the web of the rail by using clamps with 3/8-in. cadium-plated bolts through 3/8-in. holes in the rails. Each unit extends from a point about 2 ft. in approach to the facing point, through the distance in which the switch point makes contact with the stock rail and to within about 2 ft. of

the heel. The heating units are operated at 220-volts a-c. and are each rated at 3,000 watts.

Waybills and Train Lists

When leaving a terminal, the conductor of a train checks his waybills and fills out a train list on a standard form. This form is printed with indelible ink, and indelible pencils are used. The conductor lists the initial, number, contents, and tons for each car, on separate lines which are numbered from the head end to the rear of the train. During the trip, at some point where a stop is made for coal and water, the waybills and train list are taken to the locomotive. When the train is pulled into DeCoursey yard, a messenger takes these bills and list to the yard office. Here the yard clerk first checks the list for diversions and reconsignments and then establishes the classifications by marking the number of the yard track for each car, indelible pencils being used. A Ditto machine is then used to make five copies of the list, this operation requiring only a couple of minutes, copies being delivered to the retarder operator, the humpmaster and the yardmaster, and two copies are kept for checking and records. This entire operation requires from 10 to 20 min., and, in the meantime, the

Only One Machine Is Required to Control the Retarders and Power Switches

train has been inspected for defective equipment and air brakes are bled, so that the train is ready for humping.

Extension of Receiving Yard

On account of the increasing lengths of freight trains during recent years, none of the six tracks in the old receiving yard were long enough to hold an entire train of more than 80 cars. As a consequence, extra switching moves were required to get incoming trains in the clear, and at times this yard was so congested that following trains had to be held out. An important part of the improvements, therefore, was to provide a northbound receiving yard with six tracks each long enough to hold a train of 140 cars, the total capacity of the new yard being 833 cars as compared with 472 formerly. In order to accomplish this result the yard was extended southward. This required grading and filling not only for the yard but also for the relocation of the northbound main track which is on the east side of the yard.

From the south end toward the north, the receiving yard tracks are on a descending grade of 0.535 per cent for about 1,200 ft., followed by a 0.26 per cent descending grade for 2,400 ft., then an ascending grade of 0.25 per cent for 2,500 ft., and then an ascending grade of 1.18 per cent for 200 ft. toward the hump. The net result is that a yard locomotive can readily push an 8,500-ton train over the hump.

Trains from the Knoxville line pull in at the south end of this receiving yard, while trains from Louisville pull in from the north, around the hump and into the north end of this yard.

Construction Problems

As the classification operations could not be transferred temporarily to any other point, the yard was extended and reconstructed under traffic. The area including the extension of the yard tracks, the relocation of the northward main, the new switch layouts, the retarders and the new hump, is all new fill varying from 2 ft. to 25 ft. in depth, approximately 115,000 cu. yd. of fill being required. Clay, gravel and other material were taken from two borrow pits located east of the tracks about one mile south of the hump. This fill was built by contractor with off-track equipment. The fill was laid in layers of not more than 18 in., each layer being rolled and tamped with sheepsfoot rollers. To insure stability, a bedding of bridge timbers 8 in. thick was laid 20 in. below the ties under each retarder, and gravel ballast was filled in from this bedding to the ties. Perforated drain pipe was laid in the center below the bridge timbers, with "T" connections at the upper end to intercept water that may collect under the retarders.

New 100-lb. rail was laid in the main leads and through the switches and turnouts. Through the retarders, the rails were welded in order to eliminate joints. Track circuits were installed to prevent the operation of switches under cars, special attention being given to the placing of the insulated rail joints for these track circuits in the exact positions to provide maximum protection and at the same time permit minimum spacing between cars.

The reconstruction and equipment of DeCoursey yard is the result of years of investigation and planning by operating and engineering offices of the Louisville & Nashville. A. M. Stevenson is superintendent of the division including this yard, W. T. Cummins is trainmaster and W. E. Burgoyne is general yardmaster. G. R. Smiley, chief engineer of the L. & N. had general jurisdiction over the construction program. The fill was placed by contractors, and the tracks were laid by railroad forces. The power switches, retarders and control system were furnished and installed by the General Railway Signal Company, under the direction of W. H. Stilwell, signal engineer of the L. & N. The loud-speaker telephone system, made by the Western Electric Company and the humpmaster-to-engineman telephone system furnished by the Union Switch & Signal Company, were installed by railroad forces under the direction of H. W. Burwell, telephone engineer of the L. & N. The expenditures for the entire program totaled about $600,000, of which $392,000 was for filling and track work, including the receiving yard as well as the classification yard; $175,000 for the power switches, retarders, controls and power supply apparatus; $15,000 for buildings and $18,000 for communication equipment, floodlighting, snow melters, office equipment and other incidentals.

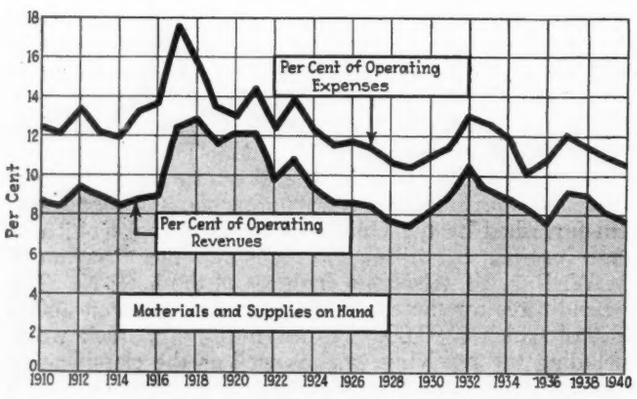
Railway Storekeepers Show Best Turnover In Years

Increases in aggregate inventories accompanied by increased material consumption—$63,000,000 from scrap sales—Lowest rail stocks in 12 years

WITH increasing railway activity and increasing uncertainty about getting materials from manufacturers, inventories of unapplied railway materials have been increasing for several months and were $8,000,000 larger in the aggregate at the beginning of the year than a year previous. They were approximately $18,000,000 larger on January 1 than at the beginning of 1939. The increases were principally in maintenance of equipment materials. The increase on January 1 of this year was only 2.2 per cent of the inventory total, however, without any allowances being made for some increases in material prices, and the total represented the smallest aggregate inventory in relation to annual operating revenues in any year since 1911 with the exception of 1936, a smaller inventory in relation to operating expenses than in any year since 1911, with the exception of 1937, and represented less material in relation to consumption than in any year since 1929 and 1930. These and other facts about railway inventories are brought out in the twelfth annual analysis of special reports received by the *Railway Age* from practically every Class I railroad in the United States and several switching and terminal companies.

A 334 Million Dollar Stock

The money tied up in unapplied materials and supplies on the Class I railroads, switching and terminal companies and other roads amounted to approximately $334,000,000 on January 1, as compared with $332,000,000 on January 1, 1940, and $322,161,000 on January 1, 1939. It was less by $50,371,000, or 12.9 per cent than on January 1, 1938, following the pile up of material in 1937; less by $137,051,000, or 29 per cent, than on January 1, 1930, and, dollar for dollar, the total was less by $427,267,000, or 55 per cent, than on January 1, 1922, following the return of the railroads to private operation after the period of Federal control ending in March, 1920. While railway inventories include much stand-by material to protect the service from failures of material in use and the relative changes in the inventory values would therefore be greater if only active stocks were considered, almost all the railroads carry material in the inventories at cost until it is used, with the result that changes in values from month to month or year to year reflect, for all practical purposes, corresponding changes in volume rather than in value, except during the post-war period and in 1932 and 1933 when material prices were unusually depressed.



Trends in the Relation of the Aggregate Value of Materials and Supplies in Stock at the Close of Each Year to Annual Revenues and Operating Expenses, 1910-1940 Inclusive

Materials and Supplies on Hand, United States Railroads*

	Amount	Reduction	Per cent of Op. Rev.	Per cent of Op. Exp.
June 30, 1911	$244,932,000	$.....	8.6	12.4
June 30, 1912	246,790,000	+1,858,000	8.5	12.1
June 30, 1913	300,601,000	+53,811,000	9.4	12.4
June 30, 1914	278,940,000	21,661,000	8.9	12.2
June 30, 1915	248,888,000	30,052,000	8.4	11.9
Dec. 31, 1916	333,361,000	+84,473,000	9.0	13.7
Dec. 31, 1917	514,051,000	+180,690,000	12.5	17.6
Dec. 31, 1918	641,759,000	+127,708,000	12.9	15.8
Dec. 31, 1919	608,527,000	33,232,000	11.6	13.5
Dec. 31, 1920	767,267,000	+158,740,000	12.1	12.9
Dec. 31, 1921	676,125,000	91,142,000	12.0	14.4
Dec. 31, 1922	556,260,000	119,865,000	9.7	12.3
Dec. 31, 1923	693,078,000	+136,818,000	10.8	13.9
Dec. 31, 1924	569,690,000	123,388,000	9.4	12.3
Dec. 31, 1925	535,126,000	34,564,000	8.6	11.5
Dec. 31, 1926	561,007,000	+25,881,000	8.6	11.8
Dec. 31, 1927	532,063,000	28,944,000	8.5	11.4
Dec. 31, 1928	478,625,000	53,438,000	7.7	10.6
Dec. 31, 1929	477,051,000	1,574,000	7.5	10.4
Dec. 31, 1930	437,375,000	39,676,000	8.2	11.0
Dec. 31, 1931	379,992,000	57,383,000	8.9	11.5
Dec. 31, 1932	321,595,000	58,397,000	10.8	13.1
Dec. 31, 1933	296,069,000	25,526,000	9.3	12.9
Dec. 31, 1934	302,346,000	+6,277,000	9.1	12.2
Dec. 31, 1935	290,751,000	11,595,000	8.2	10.8
Dec. 31, 1936	311,063,000	+20,312,000	7.6	10.5
Dec. 31, 1937	390,371,000	+79,303,000	9.3	12.3
Dec. 31, 1938	322,161,000	68,210,000	8.9	11.6
Dec. 31, 1939	332,000,000	+9,839,000	8.2	10.9
Dec. 31, 1940	340,000,000	+8,000,000	7.8	10.8

* Includes Class I, II, III and switching and terminal railroads.

The total inventory on January 1 of this year was equivalent to $1,450 of unapplied materials per mile of road and was in the ratio of 7.8 per cent of the annual operating revenues of 1940 and 10.8 per cent of the corresponding annual operating expenses. This compares with $1,400 per mile of road on January 1, 1940, and 8.2 per cent of operating revenues and 10.9 per cent of operating expenses in 1939. The ratio of the dollar value of unapplied materials to annual operating revenues was 7.6 per cent on January 1, 1937, and 7.5 per cent on January 1, 1930, but the ratios were as high as 12.9 per cent on January 1, 1919, and the lowest ratio prior to the first World War was 8.5 per cent on June 30, 1912. Inventories averaged 10.5 per cent of operating revenues on January 1, 1937; 10.4 per cent on January 1, 1930; and 10.6 on January 1, 1929. With these exceptions, the ratio of unapplied materials to annual operating expenses on January 1, 1940, was lower than

in any other corresponding year-end period in the last 30 years.

More Material Used

Class I railroads, according to the analysis which has been completed by *Railway Age,* applied or consumed $990,447,000 of materials and supplies in 1940, as compared with $902,480,000 in 1939, and $760,875,000 in 1938, and $1,051,017,000 in 1937 and they obtained approximately $62,389,000 from the sale of railroad scrap last year, as compared with $53,337,000 in 1939, $36,929,000 in 1938, and $68,552,000 in 1937. Total disbursements in 1940 included approximately $269,566,000 of coal and fuel oil, as compared with approximately $250,725,000 in 1939, and $246,563,000 in 1938. They also included $67,103,000 of new and relay rail, as compared with $57,903,000 in 1939, and $42,420,000 in 1938, also $55,864,000 of crossties, as compared with $56,142,000 in 1939, and $50,889,000 in 1938 while storehouse and miscellaneous materials used in 1940 totaled $597,913,000, as compared with $537,711,000 in 1939, and $421,002,000 in 1938. Materials consumed include second hand and shop manufactured materials, as well as newly purchased materials. Of the rail laid in 1940, $30,748,000 was reported as new rail, $17,296,000 was reported as second hand rail and $19,059,000 was unclassified. Based on a dollar value of crosstie disbursements reported by 120 railroads and quantities reported by 93 railroads, the Class I railroads laid approximately 46,000,000 crossties in 1940, as compared with approximately 44,200,000 crossties in 1939, and 42,000,000 in 1938, and they sold approximately 2,900,000 tons of

Materials on Hand, December 31, 1940, Class I Railroads

	Fuel (000)	Days' Stock*	Cross-ties (000)	Months' Stock*	Rail, New & S. H. (000)	Months' Stock*
1929	$40,000	32	$95,000	8.1	$45,000	3.9
1930	28,200	40	101,200	10.9	44,700	4.9
1931	23,600	31	86,150	11.7	49,250	8.5
1932	20,500	36	67,200	14.8	48,100	18.0
1933	17,950	37	50,950	13.0	33,600	14.0
1934	19,930	34	47,297	11.0	36,885	13.0
1935	22,218	37	42,020	9.9	34,275	11.7
1936	26,137	36	40,542	8.9	31,226	6.5
1937	30,812	39	54,622	11.5	31,123	5.6
1938	23,769	34	54,716	12.9	26,969	7.6
1939	23,732	33	47,795	10.2	26,491	5.5
1940	24,002	32	50,967	11.0	25,985	4.6

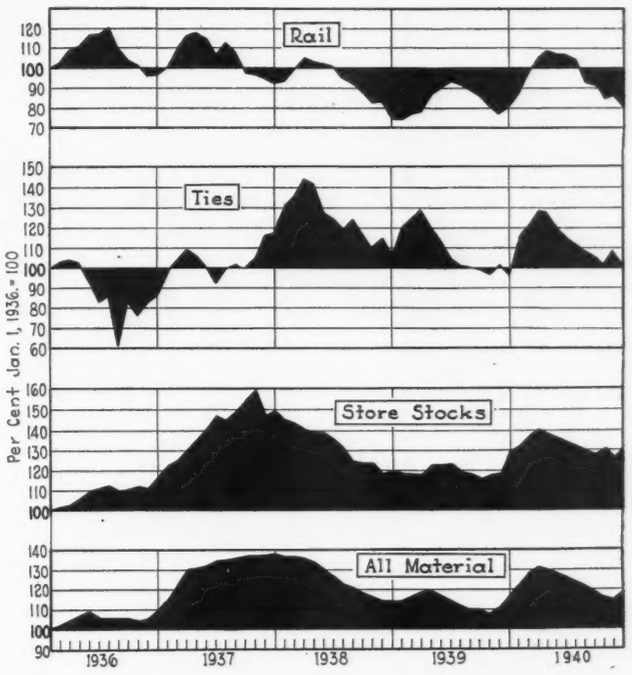
	Miscellaneous (000)	Months' Stock*	Scrap (000)	Months' Stock*	Total (000)	Months' Stock
1929	$292,000	3.5	.....	..	$472,000	3.8
1930	246,500	3.8	$10,300	..	430,900	3.8
1931	203,869	4.4	13,200	..	374,331	4.5
1932	170,000	5.5	12,800	..	316,800	5.9
1933	178,091	5.7	10,700	..	291,291	5.8
1934	181,455	5.0	11,898	..	297,465	4.6
1935	171,920	4.7	9,427	3.1	279,926	4.3
1936	199,743	4.4	9,926	2.1	307,574	4.0
1937	256,988	4.8	12,356	2.1	385,912	4.2
1938	200,566	5.8	11,542	3.7	317,562	4.8
1939	219,717	4.9	10,073	2.6	327,190	4.2
1940	223,673	4.4	9,818	1.9	334,445	3.9

* Days' or months' stock based on average consumption per day or month during previous year.

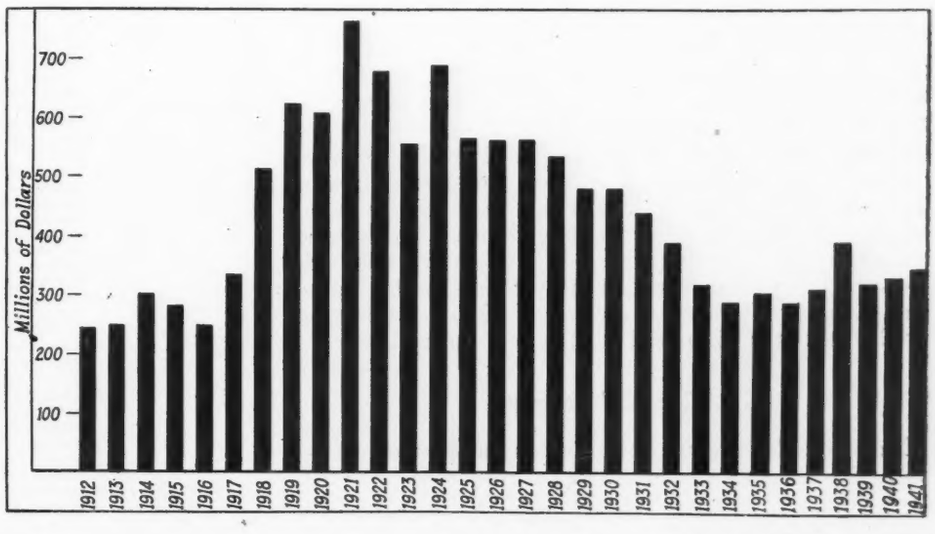
Materials on Hand—Class I Railroads*

	On Hand Dec. 31, 1940	Increase Per Cent	Per Cent of Op. Exp.
B. & L. E.	$910,091	22	10.9
Denver & Salt Lake	287,345	–14	16.2
K. O. & G.	12,595	35	1.2
Midland Valley	199,178	–17	26.4
N. Y. S. & W.	118,274	150	5.7
Staten Island	109,943	2	7.2
Texas Mexican	107,641	35	13.7

* Not elsewhere reported.



Trend of Aggregate Railway Inventories, Month to Month, from January 1936 to January 1941—January 1936 equals 100



Dollar Value of Materials and Supplies in Stock on the Railroads of the United States January 1 Each Year

scrap, as compared with 3,700,000 tons in 1939 and only 255,000 tons in 1938.

Stocks of Rail Low

Stock balances of the Class I railroads, excluding other lines, at the close of 1940 totaled $334,445,000, as compared with $327,190,000 at the close of 1939, and $317,562,000 at the close of 1938. The total included $24,002,000 of coal and fuel oil, as compared with $23,732,000 on January 1, 1940, and it included $25,985,000 of new and second hand rail, as compared with $26,491,000 on January 1, 1940, and $49,250,000 on January 1, 1932. The crosstie inventory on January 1 of this year amounted to $50,967,000, as compared with $47,795,000 on January 1, 1940, $54,716,000 on January 1, 1939, and $101,200,000 on January 1, 1931. Unsold scrap totaled $9,818,000, as compared with $10,073,000 on January 1, 1940, and $12,356,000 on January 1, 1938. Line-haul railroads purchased material in 1940 for other railroads and several railroads sold materials last year to contractors of trackage for new army camps. Some railroads did not report these sales and other railroads did not segregate materials sold from materials used. However, 52 railroads reported the sale of $8,019,870 of materials, other than iron and steel scrap, during 1940.

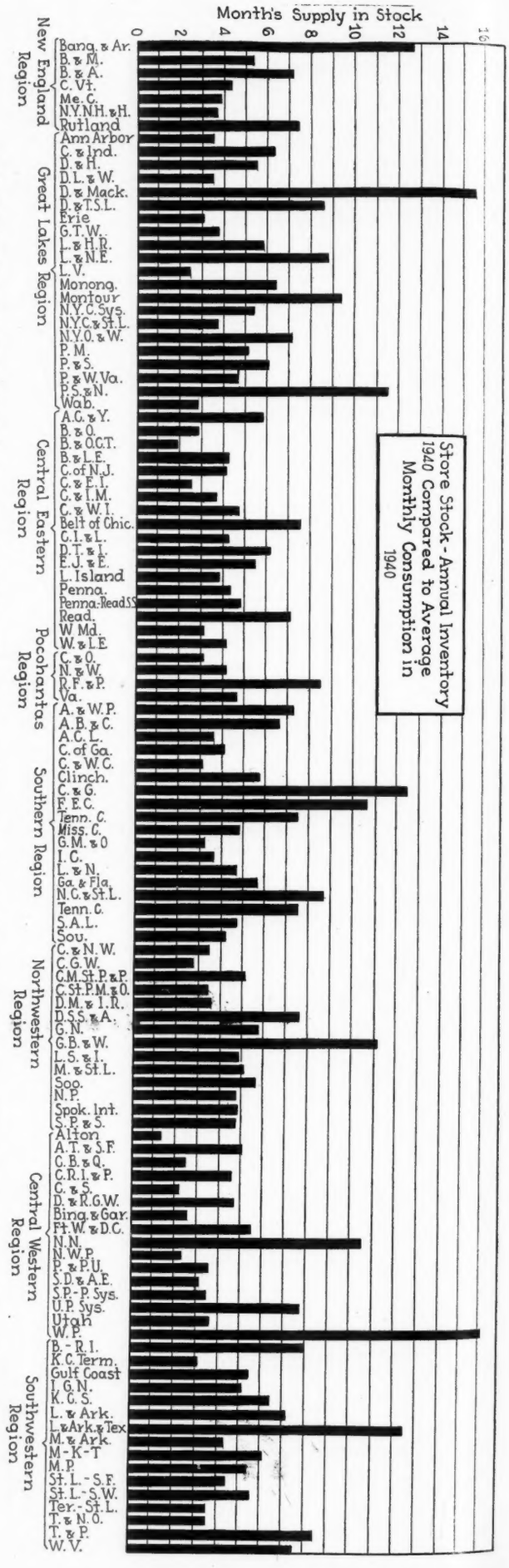
Materials in Stock—Class I Railroads

1937	Fuel (000)	Rail, New and S. H. (000)	Cross-ties (000)	Stores Stock (000)	Scrap (000)	Total (000)
Jan. 1.....	$27,390	$31,817	$43,271	$195,104	$9,993	$307,575
Feb. 1.....	29,039	32,778	49,675	199,970	8,899	320,361
Mar. 1.....	31,669	35,990	52,560	211,383	8,604	340,206
Apr. 1.....	37,729	38,316	55,424	221,094	8,888	361,451
May 1.....	32,693	38,723	54,342	230,609	9,103	365,470
June 1.....	31,738	37,644	51,205	236,232	9,781	366,600
July 1.....	32,185	35,329	47,427	246,025	10,592	371,558
Aug. 1.....	32,652	37,043	50,036	244,638	10,463	374,832
Sept. 1.....	32,619	35,819	51,595	250,206	10,187	380,426
Oct. 1.....	28,906	31,870	50,572	261,740	10,706	383,794
Nov. 1.....	28,411	31,769	53,040	261,856	9,300	384,376
Dec. 1.....	33,473	31,022	59,247	248,931	10,989	383,662
1938						
Jan. 1.....	30,499	30,333	59,015	252,104	13,106	385,057
Feb. 1.....	31,453	31,820	66,153	242,328	11,634	383,388
Mar. 1.....	28,822	32,238	68,558	240,790	11,642	382,050
Apr. 1.....	27,847	34,644	73,280	233,396	11,214	380,381
May 1.....	25,223	34,076	71,583	232,747	10,464	374,093
June 1.....	22,391	33,504	65,020	230,902	12,127	363,944
July 1.....	22,568	33,007	63,271	226,370	10,042	355,258
Aug. 1.....	20,665	32,238	60,900	219,735	11,855	345,393
Sept. 1.....	23,192	30,451	62,935	210,564	10,369	337,511
Oct. 1.....	23,376	28,934	58,968	207,791	10,818	329,887
Nov. 1.....	20,802	27,280	55,619	207,814	11,282	322,797
Dec. 1.....	24,311	27,544	60,750	194,137	11,882	318,624
1939						
Jan. 1.....	22,660	24,733	59,491	199,477	11,200	317,561
Feb. 1.....	25,594	24,691	61,796	196,330	10,393	318,804
Mar. 1.....	27,100	26,229	63,346	196,669	10,239	323,583
Apr. 1.....	29,445	27,695	65,246	197,383	10,686	330,455
May 1.....	24,101	28,459	60,749	203,806	11,217	328,332
June 1.....	21,048	29,345	57,067	205,169	11,548	324,177
July 1.....	18,732	30,520	52,809	205,027	11,761	318,849
Aug. 1.....	20,175	30,026	52,158	197,960	12,023	312,342
Sept. 1.....	21,165	29,137	51,375	194,802	12,384	308,863
Oct. 1.....	21,512	28,274	49,592	193,025	12,235	304,638
Nov. 1.....	20,800	26,642	47,330	197,378	11,722	303,872
Dec. 1.....	23,866	25,972	51,309	198,564	11,021	310,732
1940						
Jan. 1.....	21,778	25,552	51,359	216,996	11,551	327,236
Feb. 1.....	22,454	28,213	58,187	222,127	11,862	342,843
Mar. 1.....	23,190	31,546	60,615	230,045	11,576	356,972
Apr. 1.....	21,016	34,388	64,466	234,899	11,509	366,278
May 1.....	21,343	35,826	63,945	234,866	11,551	367,531
June 1.....	22,419	34,818	60,070	231,308	11,275	359,890
July 1.....	22,310	35,138	57,452	225,066	11,371	351,337
Aug. 1.....	24,065	34,134	55,988	222,001	11,326	347,514
Sept. 1.....	25,513	31,927	54,531	217,948	11,041	340,960
Oct. 1.....	25,442	30,055	53,517	216,201	10,848	336,063
Nov. 1.....	22,272	27,457	50,374	221,444	9,711	331,258
Dec. 1.....	24,414	27,674	54,464	213,555	9,602	329,709
1941						
Jan. 1.....	24,002	25,985	50,967	223,673	9,818	334,445

3.9 Months' Supply

Based on the average month's consumption of materials in 1940, fuel stocks on January 1 represented 32 days stock as compared with 33 days stock on January

Stocks of Material Held by Railroads on January 1, 1941, in Relation to the Average Monthly Consumption in 1940—Excludes Fuel, Rail, Cross Ties and Scrap



1, 1940, and 34 days stock on January 1, 1939. Crossties on hand represented 11.0 months stock on January 1 as compared with 10.2 months on January 1, 1940, 12.9 on January 1, 1939, and 14.8 months stock on January 1, 1933. Stores stocks on January 1 represented 4.6 months stock, as compared with 5.5 months on January 1, 1940, 7.6 months on January 1, 1939, 5.6 months on January 1, 1938, and 18.0 months on January 1, 1933, and they represented the lowest average stock in relation to the average monthly consumption of any corresponding period except January 1, 1930, when the stores inventory represented a 3.9 months supply. Total materials and supplies in the hands of the railroads at the beginning of this year indicated a 3.9 months supply, as compared with 4.2 months on January 1, 1940, and 4.8 months supply on January 1, 1939, and reflected the

Approximate Quantities Used—1940

	Fuel Oil Used Bbl.	Rail—New O. H. G. T.	Rail—New Laid G. T.	Rail—S. H. Laid G. T.	Crossties O. H. Pcs.	Crossties Laid Pcs.	Scrap Sold N. T.
A. C. & Y.	32	86	9	141	26,296	52,299	449
Alton	19,638	72	5,233	4,970	123,459	387,775	.....
A. & S.	.....	350	377	560	3,438	13,571	746
A. T. & S. F.	2,300,748†	87,136	145,162	.....	4,280,311	2,078,802	.....
A. & W. P.	.....	143	1,550	2,078	96,591	121,393	4,276
A. B. & C.	.....	.....	858	605	90,904	124,097	1,285
B. & O.	145,059	637	47,305	39,764	663,033	1,305,954	97,478
B. & O. C. T.	42,484	7,914	1,343	561	5,458	30,136	11,897
B. & Ar.	.....	659	3,661	162	167,514	147,108	.....
B. & G.	.....	60	490	265	5,374	5,899	553
B. & A.	7,779	135	3,202	2,918	130,757	58,551	10,875
B. & M.	2,485	892	9,781	6,120	523,166	314,946	34,820
Bur.-R. I.	64,246	8	23	4	21,955	19,853	85
C. & I.	.....	13	269	258	2,417	21,948	1,074
Cent. of Ga.	.....	1,609	3,488	5,199	429,015	375,956	.....
C. of N. J.	20,115	526	5,459	4,744	103,980	175,428	22,708
C. Vt.	1,513	374	1,814	472	75,647	46,973	3,746
C. & O.	4,262	326	33,187	33,274	896,778	460,495	77,852
C. & E. I.	6,196	293	5,983	6,060	190,129	166,534	9,707
C. & I. M.	1,532	43	2,073	743	8,131	14,565	3,043
C. & N. W.	720,901	.....	18,257	24,994	.....	1,496,388	.....
C. B. & Q.	600,396	.....	30,475	20,420	.....	1,943,500	.....
C. G. W.	46,548	179	5,183	4,582	67,174	308,939	18,067
C. St. P. M. & O.	28,714	398	1,953	2,766	470,237	375,549	15,777
Clinch.	.....	1,268	2,355	486	87,112	103,652	9,534
Colo. & Sou.	79,182	50	30	1,273	67,441	101,328	5,670
Col. & Green.	1,150‡	4	5	444	1,229	26,978	357
D. L. & W.	23,287	37	5,274	8,024	136,543	154,690	49,691
D. & R. G. W.	.....	220	10,642	10,421	202,006	253,968	25,845
D. & Mack.	.....	.....	.....	549	29,972	34,011	539
D. & T. S.	195	9	103	152	7,653	18,131	536
D. T. & I.	98	140	2,549	759	108,064	55,097	2,708
D. M. & I. R.	7,852	797	7,508	2,809	148,469	129,864	6,413
D. S. S. & A.	.....	39	1,585	581	60,957	109,055	3,056
D. W. & Pa.	100	1,752	145	75	36,262	66,675	240
E. J. & E.	19,803	5,253	1,991	1,472	88,098	174,384	16,132
Erie	67,685	457	21,353	13,215	536,797	418,102	84,517
F. E. C.	836,972*	487	13	1,374	91,141	274,460	4,667
Ft. W. & D. C.	510,398	41	25	852	21,344	89,917	4,977
Ga. & F.	260	.....	.....	4,132	4,446	92,932	241
G. T. W.	46,409	188	5,154	6,419	84,913	318,581	21,155
G. N.	3,257,254	.....	25,151	35,128	.....	1,529,256	.....
G. B. & W.	1,061	72	None	1,198	56,606	181,303	1,533
G. C. L.	1,007,774	1,211	3,382	4,013	65,954	271,908	8,561
G. M. & O.	10,751	264	3,309	6,908	496,153	673,435	57,421
I. C.	110,861	517	.....	.....	390,880	2,073,966	110,944
Ill. Term.	3,706	464	644	1,420	74,957	63,587	1,843
I.-G. N.	1,167,255	118	1,795	1,672	103,098	180,924	17,459
K. C. S.	771,027	67	6,012	5,525	.....	.....	.....
K. C. Term.	64,889	68	715	449	28,160	23,284	1,526
L. S. & I.	64	117	697	138	37,334	41,428	337
L. & H. R.	.....	656	387	169	6,589	8,515	.....
L. & N. E.	350	.....	36	684	23,245	18,273	859
L. V.	46,387	974	1,909	4,929	204,887	179,749	31,067
L. & A.	623,740	285	4,391	12,654	173,151	204,917	7,011
L. & N.	1,529	11,209	29,398	35,896	1,806,129	912,542	.....
Me. C.	247	669	1,437	2,220	170,572	230,234	13,556
M. & St. L.	14,686	1,863	1,698	4,627	261,402	361,587	4,980
M. St. P. & S. S. M.	7,621	232	9,753	9,887	617,450	743,442	24,255
M.-K.-T.	2,309,870	39	4	5,536	403,079	309,850	11,403
Mo. & Ark.	4,700	None	None	1,244	18,574	111,231	220
Monong.	371	31	997	1,380	5,741	43,020	1,710
Montour	391	110	217	145	86	7,589	1,432
N. C. & St. L.	7,099	810	2,614	3,332	407,635	160,514	.....
Nev. Nor.	123	105	24	194	29,283	36,922	.....
N. Y. C. & St. L.	6,821	343	10,664	9,947	365,900	304,333	22,943
N. Y. N. H. & H.	459,371	3,492	10,037	14,496	.....	.....	73,325
N. Y. O. & W.	.....	.....	.....	.....	14,925	.....	2,968
Norf. Sou.	.....	.....	.....	175	90,160	287,497	5,784
N. P.	280,436	1,879	35,061	51,103	1,099,419	1,294,107	.....
P. & P. U.	3,394	1	.....	307	2,225	8,316	729
P. M.	7,800	2,772	4,045	5,479	613,857	509,295	.....
P. & Sh.	31	1	.....	207	21,603	33,756	9,268
P. S. & N.	.....	.....	.....	181	19,706	35,903	409
Reading	32,525	.....	4,305	3,852	.....	.....	.....
R. F. & P.	870	1,690	1,749	621	114,581	146,158	.....
Rutland	.....	154	19	783	14,169	23,271	1,525
St. L. S. W.	1,452,396	1,947	4,094	12,964	388,979	326,580	21,315
S. A. L.	208,000	2,233	14,930	19,929	459,576	1,021,310	29,502
Southern	73,081	2,065	28,900	40,348	1,017,258	1,920,830	90,437
S. I.	.....	4	.....	64	17,816	58,907	151
Tenn. C.	76,112	.....	1,778	1,319	.....	89,409	1,094
Term. of St. L.	1,532	137	913	126	8,934	36,904	.....
T. & N. O.	3,603,262	2,509	4,051	12,346	646,326	816,891	.....
Utah	20	629	3	68	26,906	6,094	143
Virginian	.....	95	18,820	3,443	315,933	132,235	.....
West. Md.	1,015	1,029	5,382	3,507	259,389	208,762	22,754
W. P.	1,207,714	1,411	197	1,550	294,281	522,521	8,139
W. & L. E.	1,277	1,041	6,055	3,660	149,488	153,222	16,332
Wich. Val.	42,866	.....	.....	12	3,998	23,411	240
S. P. & S.	660,216	195	9,975	2,182	56,371	290,970	5,426

* Includes 25,600 Bbl. of Diesel fuel.
† Estimated.
‡ Gasoline.

Materials and Supplies Used and

Road	Fuel — On Hand Dec. 31	Fuel — On Hand Inc. %	Fuel — On Hand Day's Stock	Fuel — Used 1940	Fuel — Used Inc. %	Rail—New — On Hand Dec. 31 New	Rail—New — On Hand Inc. %	Rail—New — Used 1940 New	Rail—New — Used Inc. %	Rail—Old — On Hand Dec. 31 Old	Rail—Old — On Hand Inc. %	Rail—Old — Used 1940 Old	Cross ties — On Hand Dec. 31	Cross ties — On Hand Inc. %	Cross ties — Month's Stock
Bangor & Aroos	$97,917	—35	66	$414,204	—4	$29,137	—26	$159,428	55	$68,257	250	$3,068	$104,336	—14	12.5
Boston & Albany	101,568	4	16	2,260,944	—2	5,738	—20	131,553	24	128,491	15	68,144	159,169	13	23.6
Boston & Maine	212,605	—24	18	4,232,939	5	39,889	—68	433,506	6T	186,833	29	155,050	689,853	5T	17.0
Central Vermont	78,498	19	38	732,473	11	16,869	4	81,069	—9	72,316	40	11,912	115,152	—14	23.2
Maine Central	93,300	—20	19	1,317,146	—9	29,829	29	64,863	—1	81,521	—6	44,627	259,663	55	13.2
New York, New Haven	924,971	—4	69	4,803,478	6	154,807	79	452,147	—34	291,248	—5	362,416	832,362	17	37.6
Rutland	54,428	—7	43	450,195	—10	6,763	..	810	..	13,758	..	13,113	19,583	—25	8.0
NEW ENGLAND REGION‡	1,563,287	..	39	14,211,379	..	283,032	..	1,323,376	..	842,424	..	658,330	2,180,117	..	19.1
Ann Arbor	34,948	150	25	500,024	6	109	100	1,143	10T	14,456	60	32,506	10,257	12	2.2
Cambria & Indiana	523	—15	5	40,643	11	441	—55	9,414	..	2,639	2T	4,169	437 9	130	1.3
Delaware & Hudson	386,398	70	60	2,320,896	11	28,221	48	406,860	21	121,094	63	161,832	513,180#	2	16.0
Delaware, Lack. & West	90,052	—12	7	4,558,158	—2	1,496	—97	222,059	—18	86,050	—20	180,462	163,639	—30	9.0
Detroit & Mackinac	9,082	11	58	56,327	—2	None	..	None	..	26,789	25	14,218	16,007	48	9.5
Detroit & Toledo Shore	4,716	—9	11	157,720	7	417	—20	4,608	10	6,160	—5	3,505	13,678	34	5.1
Erie	191,231	7	12	5,575,735	—1	19,544	—20	905,564	9	170,797	—17	364,134	654,268	1	13.4
Grand Trunk Western	271,428	1	52	1,889,990	7	7,816	—64	220,240	160	171,994	—6	160,989	112,634	90	27.2
Lehigh & Hudson River	4,722	—33	10	158,839	12	28,989	75	15,687	210	1,610	60	3,364	13,569	95	8.7
Lehigh & New England	72,471	—30	89	295,322	6	57,140†—29		773	—98	Not Sep.		19,154	31,350	—18	12.2
Lehigh Valley	202,460	22	18	4,033,276	—1	39,970	150	78,324	—18	123,692	11	98,592	281,569	130	12.0
Monongahela	1,591	2	4	130,724	18	1,312	120	42,526	—5	16,130	21	37,103	9,923	120	1.9
Montour	964	—23	3	108,079	19	4,524	—67	8,944	76	1,521	—63	3,239	187	—83	1.0
New York Central	1,140,186	41	25	19,296,984	7	1,502,730†	13	4,456,716†	1	Not Separated			4,192,065#	7	14.5
N.Y. C. & St. L	201,803	13	20	3,511,752	9	14,526	80	448,370	49	101,515	103	291,681	387,025	24	10.5
New York, Ont. & W	50,053	—38	27	653,720	—11	1,584	..	2,402	..	17,858	..	12,527	11,189	—20	6.2
Pere Marquette	256,548	2	31	2,954,866	8	139,949	20	180,975	—9	81,853	—4	136,805	747,792	44	11.0
Pitt. & Shawmut	1,347	..	8	63,077	46	42	None	.....	..	2,233	60	4,528	22,381	170	5.7
Pitt. & West Va	7,231	..	15	173,483	..	5,353	..	79,255	..	8,390	..	27,376	24,299	..	2.5
Pitt., Shawmut & Nor	1,434	16	8	63,200	25	None	..	None	..	7,792	—22	4,580	19,737	—75	6.6
Wabash	128,839	43	16	2,822,015	7	37,708	2	640,998	49	163,462	21	427,689	390,352	—22	6.2
GREAT LAKES REGION‡	3,058,027	..	22	49,364,830	..	1,891,871	..	7,724,858	..	1,126,035	..	1,988,453	7,619,480	..	11.5
Akron, Cant. & Young	3,578	89	10	127,898	14	3,125	16	335	—80	1,899	—61	3,822	34,792	6T	6.2
Alton & Southern	940	178	3	107,258	1	15,625	7	16,870	—28	4,375	19	16,884	4,784	3T	3.4
Baltimore & Ohio	368,083	20	13	10,448,462	10	26,128	—23	1,939,505	93	263,813	45	769,473	994,549	96	5.8
B. & O. C. T	25,827	90	19	501,747	14	15,443	226	60,992	..	21,799	..	14,793	12,213	—37	2.4
Belt. of Chicago	30,331	—17	21	531,287	7	28,095	61	76,378	214	21,984	—13	24,330	78,283	—25	8.1
Central of New Jersey	120,118	72	14	3,094,450	4	22,240	—55	241,012	74	9,000	—55	119,759	149,503	46	6.3
Chicago & Eastern Ill	25,689	—17	10	883,988	9	12,955	25	264,116	19	46,074	—56	174,528	156,175	10	9.7
Chicago & Illinois Mid	43,887	35	82	194,246	21	1,919	106	94,354	45	30,439	57	16,798	13,946	—45	7.0
Chicago & Western Ind	9,826	63	23	150,574	12	30,239	170	58,984	41	23,160	—35	13,759	36,044	—1	8.1
Chicago, Ind. & Louis	15,677	4	12	477,913	2	None	..	.....	..	106,823	17	72,071*	89,454	+3	12.3
Detroit, Toledo & Iron	13,096	19	15	297,539	16	6,294	—49	112,297	10T	34,871	61	36,304	110,181	36	17.5
Elgin, Joliet & Eastern	21,169	20	9	839,834	16	217,546	290	81,692	31	22,403	14	33,858	132,001	108	5.8
Illinois Terminal	1,181	—49	5	82,279	11	19,450	..	27,018	26T	27,342	—21	32,991	73,243	—16	11.5
Long Island	58,202	25	24	877 028	—12	60,674	—11	32,221	—27	43,691	170	94,213	49,323	20	31.2
Pennsylvania	1,304,210	69	22	21,045,891	9	1,696,729	—10	3,234,877	43	766,822	58	1,909,104	4,227,895	14	15.1
Penna.-Read. S.S.L	36,015	220	30	428,078	—7	1,722	—5	10,861	3T	32,792	26	25,967	24,815	136	2.3
Reading	279,906	20	21	4,636,645	5	190,564	—32	174,951	160	72,923	—46	96,309	380,215	—20	14.2
Western Maryland	59,181	—8	20	1,049,598	5	43,474	4T	229,568	—14	23,884	100	47,544	304,185	—19	11.8
Wheeling & Lake Erie	38,164	2	18	778,550	10	45,074	—48	260,768	40	86,059	49	92,092	158,074	50	8.3
CENTRAL EASTERN REGION‡	2,455,080	..	18	46,553,265	..	2,437,296	..	6,916,799	..	1,640,153	..	3,534,599	7,029,675	..	8.9
Chesapeake & Ohio	240,813	10	17	5,117,758	10	13,888	—95	1,416,489	32	125,718	46	831,851	618,832	24	12.1
Norfolk & Western	166,653	—4	14	4,027,249*	20	555,114	—27	1,154,326*	40	N.S.	..	N.S.	869,261	7	3.9
Richmond, Fred. & Pot	81,864	61	34	858,807	6	73,993	4T	74,644	5T	25,501	56	7,258	103,418	—16	5.2
Virginian	13,500	—13	6	879,067	27	4,335	—95	789,256	200	369,699	190	86,061	378,766	—13	25.8
POCAHONTAS REGION‡	502,830	..	16	10,882,881	..	647,330	..	3,434,715	..	520,918	..	925,170	1,970,277	..	18.3
Atlantic & West Point	111,672	2	50	792,499	20	6,424	69	70,751	5	21,929	—30	41,061	115,383	10	9.6
Atlanta, Birm. & Coast	25,984	—12	29	318,533	15	None	..	36,495	4T	10,657	5	12,154	84,943	71	8.5
Atlantic Coast Line	457,840	—38	35	4,614,623	7	43,102	2T	345,749	180	253,719	—40	458,577	424,677	—3	6.5
Central of Georgia	69,763	—5	19	1,287,837	11	68,135	—76	147,304	—1	65,218	33	118,996	369,053	47	11.8
Charleston & W. Carolina	7,196	—7	12	212,803	3	888	63	24,598	1	4,859	—44	19,178	46,499	13	8.3
Clinchfield	10,325	17	10	374,473	15	56,671	8T	105,642	30	6,344	9	10,687	71,980	—33	8.6
Columbus & Greenville	3,036	16	13	79,776	—10	159	—69	232	—97	4,566	—56	8,830	1,246	—59	0.6
Florida East Coast	185,715	5	70	955,211	36	24,111	—4	825	47	238,545	—12	31,679	91,226	—16	4.0
Georgia & Florida	29,073	..	97	108,408	..	None	..	None	..	6,981	..	198	2,529	..	0.5
Gulf, Mobile & Ohio	44,508	—1	18	872,839	8	11,389	—87	141,309	—31	48,716	—43	135,203	385,157	—61	7.5
Illinois Central	479,518	65	22	7,850,637	4	22,262	—77	1,143,264	63	356,641	2	586,883	403,127	—3	2.3
Louisville & Nashville	512,220	54	34	5,359,459	15	467,010	25	1,218,883	60	163,859	6	782,590	1,947,899	17	18.5
Mississippi Central	4,526	128	33	48,755*	12	None	..	41,334*	..	7,067	—43	.....	8,509	—72	.....
Nash., Chat. & St. Louis	211,137	5	68	1,151,040	9	34,502	—12	112,295	—25	17,486	34	67,762	405,153	7	21.4
Norfolk Southern	31,647	45	41	276,221	—2	None	..	None	..	23,526	43	3,578	56,553	66	3.8
Seaboard Air Line	399,058	3	38	3,787,523	10	94,626	3T	640,992	—6	200,617	—5	548,716	489,784	—4	5.1
Southern	600,660	36	26	8,137,315	5	85,067	180	1,234,658	11	278,970	—5	865,774	1,505,855	2	6.5
Tennessee Central	12,548	3T	33	137,305	4	.....	..	79,039	150	.....	..	32,574	8,240	—60	1.3
Georgia	.....	..	..	.....	..	.....	..	.....	..	.....	..	.....	.....	..	.....
Georgia Lines	67,137	..	49	498.936	..	310	..	408	..	12,729	..	26,460	72,637	..	9.0
SOUTHERN REGION‡	3,196,426	..	32	36,365,257	..	914,346	..	5,343,370	..	1,709,700	..	3,724,440	6,417,813	..	7.3
Chicago & Northwestern	411,917	—22	28	5,194,772	3	144,267	1	797,769	—1	442,268	—29	749,465	2,167,827	—1	16.5
Chicago Great Western	50,724	32	13	1,373,272	4	7,559	46	217,630	14	36,695	44	99,202	86,252	100	2.7
Chi., Mil. St. P. & P	578,772	..	30	6,857,590	2	513,759†—27		1,821,030†	—13	Not Separated		N. S.	2,252,461	47	9.5
Chi., St P., Minn. & O	92,355	11	15	2,220 840	29	17,058	18	83,706	—63	157,090	—6	83,431	411,891	25	11.1
Duluth, Miss. & I. R	306,355	—14	101	1,086,945	30	35,673	73	336,753	96	54,418	27	57,400	233,338	—32	15.0
Duluth, S. S. & A	5,607	—33	8	245,335	5	1,709	190	68,035	..	24,488	43	11,638	39,575	95	6.9
Duluth, Winn. & Pac	1,014	5	2	151,841	13	81,456	—28	6,769	5T	22,549	4	1,881	35,036	152	8.8
Great Northern	1,557,724	—4	85	6,516,279	3	662,616†—21		878,386†	—1	Not Separated		.....	895,879	6	5.6
Green Bay & Western	8,971	4	16	191,963	6	1,809	—22	None	..	7,920	48	29,555	46,143	6T	3.7
Lake Superior & Ish	62,299	—17	19	116,873	17	5,190	..	30,950	..	41,885	—7	3,265	23,080	—2	9.4
Minneapolis & St. Louis	31,679	—15	26	438,695	10	78,546	70T	71,704	—22	190,686	2T	96,626	227,220	—5	8.5
Minn. St. P. & S. S. M	150,889	9	23	2,319,343	6	9,696	—27	416,964	29	112,771	13	201,692	473,745	56	7.6
Northern Pacific	248,657	4	19	4,740,280	4	85,088	—75	1,587,572	11	472,162	—30	1,079,289	1,287,750	—19	10.1
Spokane International	3,230	6T	24	47,655	3	229	—10	.....	..	11,578	1	1,691	8,289	—22	3.6
Spokane, Port. & Seattle	67,188	8	38	636,733	4	10,472	84	534,200	140	182,169	160	53,461	64,827	—42	3.2
NORTHWESTERN REGION‡	3,577,381	..	40	32,138,916	..	1,655,127	..	6,851,468	..	1,756,679	..	2,468,596	8,253,113	..	9.7
Alton	22,844	—39	7	1,095,176	13	3,014	—76	220,096	6T	76,157	130	40,948	157,108	—1	3.7
A. T. & S. F	2,594,339	10	71	13,002.588	2	2,141,082	5	4,489,853	5	Not Sep.	..	Not Sep.	4,783,652	11	22.0
Bingham & Garfield	None	..	..	23,897	3T	2,764	—43	27,624	23	3,040	..	6,157	10,930	—38	10.2
Chi., Burlington & Q	502,596	—1	37	4,886,566	2	738,730†—25		1,281,176	30	Not Sep.	..	508,288	2,953,496	—1	15.3
Chi., R. I. & P	348,488	9	24	5,208,609	1	591,774†—42		2,826,002†	—3	Not Sep.	..	.....	1,412,204	5	16.4
Colo. & Southern	31,865	31	23	502,159	2	2,362	—24	1,356	—62	50,520	—5	31,823	58,059	—2	6.2
Denver & R. G. W	77,351	43	13	2,055,232	5	9,159	—33	461,785	—33	258,061	7	258,794	172,578	—11	9.5
Ft. W. & D. C	127,972	—3	147	312,647	—17	1,960	—52	1,259	—61	6,483	—76	25,595	21,289	3	2.6
Nevada Northern	4,225	..	14	106,182	..	5,822	..	1,449	..	5,923	..	5,287	25,354	..	9.9
Northwestern Pacific	37,144	3	51	259,392	—13	15	..	2,364	10T	10,109	—46	105,084	22,571#	0	3.9
Peoria & Pekin Union	5,622	3	23	87,675	—11	58	—40	23	..	2,943	—63	7,762	3,397	85	3.4
San Diego & Ariz. East	1,892	—33	9	72,804	—2	530	—60	480	..	2,984	—57	10,812	10,526#	1	5.0
Southern Pacific	1,334,414	1	27	17,521,800	—4	179,191	—30	2,483,220	30	467,473	24	1,271,376	918,108#	7	6.4
Union Pacific Sys	1,200,284	14	31	14,074,345*	85	4,001,353*	53	2,175,123*	—35	Not Sep.	..	Not Sep.	2,618,860	—13	2.1
Utah	1,263	..	9	46,642	..	29,554	..	170	..	1,565	..	1,717	57,201	..	5.8
Western Pacific	140,616	—4	30	1,697,561	4	65,300	—16	9,462	—35	114,478	—35	49,483	283,546	—12	5.7
Denver & Salt Lake	.....	..	..	.....	..	.....	..	.....	..	.....	..	.....	.....	..	.....
CENTRAL WESTERN REGION‡	6,430,915	..	38	60,893,275	..	7,772,668	..	13,981,442	..	1,001,736	..	2,323,126	13,509,879	..	14.9
Burlington-Rock Island	2,878	170	13	79,833	29	364	—73	1,018	..	923	—53	117	16,934	—52	10.5
Kansas City Southern	159,787	..	105	884,881	..	3,162	..	274,533	..	49,296	..	103,451	253,506	..	15.0
Kansas City Terminal	11,121	—31	15	268,916	20	3,740	59	34,105	87	1,257	—9	11,220	37,150	70	11.2
Louisiana & Arkansas	116,653	—37	111	378,559	5	13,909	—93	345,642	..	107,211	..	229,310	105,911	15	7.0
Missouri & Arkansas	1,310	—21	6	77,615	10	None	..	None	..	3,199	26	19,621	9,565	..	2.2
Missouri-Kansas-Texas	60,818	..	..	1,655,633	..	1,721	..	175	..	51,618	..	139,800	305,928	..	5.7
Missouri Pacific Sys	703,991	4	39	6,475,356	4	209,355	3T	1,946,436	37	287,771	—28	723,312	1,216,539	14	5.7
Gulf Coast Lines	259,539	7	114	817,433	10	55,470	83	158,970	40	32,044	—57	100,329	67,591	—8	2.7
Intl. Gt. No.	110,321	—48	54	729,204	1	5,271	—13	80,077	2T	22,334	—56	41,804	105,160	—21	6.8
St. Louis-San Francisco	193,405	—15	20	3,356,791	5	185,237	—33	641,616	—12	Not Sep.	..	Not Sep.	856,595	—32	10.5
St. Louis-Southwestern	490,712	100	177	983,207	5	87,424	4T	188,782	—71	85,860	—29	134,826	321,372	27	10.2
Terminal of St. Louis	16,446	5	9	651,694	4	6,590	—54	44,007	—1	2,902	—23	3,155	13,223	—21	2.9
Texas & New Orleans	423,310	—21	53	2,832,143	15	111,981	12	180,442	150	150,938	3T	308,106	573,325	16	9.6
Texas & Pacific	1,036,668	—1	250	1,488,405*	—5	420,398	44	574,788*	50	Not Sep.	..	Not Sep.	272,380	4	31.0
Wichita Falls & So	944	..	..	16,072	..	.....	..	.....	..	2,867	..	200	4,226	..	.....
Wichita Valley	1,170	67	18	23,390	1	.....	..	.....	..	1,022	—3	368	3,659	—58	1.9
SOUTHWESTERN REGION‡	3,218,269	..	60	19,156,423	..	1,043,881	..	4,231,544	..	741,997	..	1,673,286	3,986,087	..	8.5
Grand Total‡	$24,002,215	..	32	$269,566,226	..	$16,645,551▲	..	$49,807,572+	..	$9,339,642°	..	$17,296,000	$50,966,641	..	11.0

‡ Total of Roads Reporting † New and Relay T Times * Estimated # Cross and Switch ▲ $5,830,640 New and $10,814,911 Unclassified

Carried by Class I Railroads in 1940

Used 1940	Inc. %	Stores Stock — On Hand Dec. 31	Inc. %	Stock	Used 1940	Inc. %	Total—Less Scrap — On Hand Dec. 31	Inc. %	Mo.'s Stock	Used 1940	Inc. %	Scrap — On Hand Dec. 31	Sold 1940	Sales Exc. Scrap	Total On Hand	Ratio to Op. Exp. %	Road
$93,157	—4	$688,638	12	12.8	$640,907	—1	$988,285	5	10.0	$1,310,764	1	$19,590	$11,420	.....	$1,007,875	27.2	B. & Ar.
80,688	—9	1,136,464	—8	7.2	1,891,632	26	1,531,430	—4	4.2	4,432,961	9	10,572	287,328	.....	1,542,002	9.8	B. & A.
485,067	45	2,046,388	—2	5.5	5,436,095	17	3,175,568	—4	3.5	10,742,657	17	25,451	475,947	$236,615	3,201,019	9.7	B. & M.
59,613	—13	325,919	13	4.5	854,195	45	608,754	10	4.2	1,739,262	22	8,749	54,483	43,172	617,503	12.5	C. Vt.
255,924	11	644,498	—12	3.9	1,959,255	18	1,108,810	—2	3.6	3,641,815	8	23,140	241,156	N.R.	1,131,950	12.8	Me. C.
362,814	35	3,564,401	2	3.7	11,310,381	—1	5,767,789	4	4.0	17,291,236	1	92,362	1,241,111	241,720	5,860,151	9.3	N. Y., N. H. & H.
29,061	—6	176,666	—15	7.5	286,960	20	271,198	—16	4.1	780,139	—1	5,106	.....	32,855	276,304	8.6	Rut.
1,366,324	..	8,582,974	..	4.6	22,379,425	..	13,451,834	..	4.0	39,938,834	..	184,970	2,491,445	554,362	13,636,804	10.3	
54,031	5	157,485	—15	3.4	517,059	..	217,255	0	2.4	1,104,763	11	1,831	15,514	21,891	219,086	6.7	Ann Arbor
40,152	31	34,249	—3	6.3	65,409	—11	42,231	—35	3.1	159,787	11	1,418	17,106	None	43,649	27.4	Camb.
382,956#	—15	1,370,570	16	5.5	2,997,132	31	2,419,463	18	5.6	6,269,676	19	128,632	330,174	.....	2,548,095	13.5	D. & H.
217,179	47	1,199,808	—9	3.4	4,195,666	2	1,541,045	15	1.9	9,373,524	0	47,842	931,232	230,348	1,588,887	4.0	D. L. & W.
20,390	9	124,978	—9	15.7	95,371	1	176,856	—1	11.3	186,306	7	462	8,446	.....	177,318	28.2	D. & M.
31,892	15	79,706	—20	8.5	112,480	20	104,677	—15	4.0	310,205	9	934	6,488	4,136	105,611	6.0	D. & T. S.
585,803	10	2,511,432	13	3.0	10,009,932	7	3,547,272	7	2.5	17,441,168	4	271,483	1,760,873	.....	3,818,755	6.1	Erie
494,512	—4	1,261,336	16	3.8	3,314,713	—13	1,825,208	13	3.6	6,080,444	3	89,265	353,814	.....	1,914,473	10.3	G. T. W.
18,826	—32	52,772	—1	4.5	140,500	28	101,662	20	3.0	337,216	18	8,805	20,287	701	110,467	9.6	L. & H. R.
30,632	—1	228,027	6	8.9	305,398	10	388,988	41	7.2	651,279	3	49,288	18,242	6,705	438,276	15.7	L. & N. E.
281,832	0	1,541,893	—18	2.4	7,519,589	36	2,189,584	—5	2.2	12,011,613	19	92,208	609,691	32,063	2,281,792	6.9	L. V.
69,129	..	173,406	0	6.3	329,882	28	202,392	5	4.0	609,364	19	1,398	21,255	1,438	203,760	10.3	Monong.
16,492	30	143,246	—5	9.3	187,683	5	150,442	—12	5.6	324,437	11	1,423	22,923	1,472	151,865	11.5	Montour
3,436,788#	1	18,133,669	4	5.3	41,266,044	16	24,968,650	6	4.3	68,456,532	12	581,631	8,442,612	.....	25,550,281	10.2	N. Y. C.
442,875	1	1,537,195	42	3.8	4,880,243	11	2,242,064	37	2.8	9,574,921	10	88,321	515,327	5,564	2,330,385	7.5	N. Plate
21,600	—4	334,391	—11	7.0	578,014	14	415,075	—18	4.0	1,268,263	—7	10,891	64,715	.....	425,966	8.0	N. Y. Ont.
813,342	9	1,593,924	52	5.1	3,715,727	21	2,820,066	48	4.4	7,801,715	13	79,855	401,003	119,062	2,899,921	11.6	P. M.
47,329	—9	67,857	—5	6.2	132,270	60	93,860	14	4.5	247,204	24	3,768	11,965	.....	97,628	11.3	P. & S.
117,425	..	64,893	..	4.8	162,302	..	110,166	..	2.3	559,841	..	N.R.	109,427	.....	110,166	7.8	P. & W. Va.
35,873	—12	54,161	—5	11.4	57,224	27	83,124	9	4.0	160,877	13	1,604	8,597	.....	84,728	10.2	P. S. & N.
749,397	—10	1,847,194	17	2.9	7,675,221	39	2,567,555	3	2.5	12,315,320	28	18,311	200,313	408,342	2,585,866	7.5	Wabash
7,908,455	..	32,512,192	..	4.4	88,257,859	..	46,207,605	..	3.5	155,244,455	..	1,479,370	13,870,004	831,722	47,686,975	8.5	
67,129	35	79,876	—6	5.9	161,825	—11	123,270	22	4.1	361,009	4	2,432	7,349	.....	125,702	7.6	A. C. & Y.
16,863	128	60,454	24	6.8	106,797	33	86,178	26	4.0	264,672	18	2,643	9,000	.....	88,821	8.6	A. & S.
2,079,283	—22	6,530,546	25	2.8	27,294,368	4	8,189,119	28	2.3	42,531,091	8	88,057	1,740,698	2,010,687	8,277,176	6.3	B. & O.
61,257	—13	237,736	21	1.7	1,668,987	30	313,018	33	1.6	2,307,776	26	18,854	158,922	None	331,872	8.7	B. & O. C. T.
116,977	31	195,111	—8	7.4	318,428	18	353,804	31	4.0	1,067,400	18	35,490	38,681	.....	389,294	11.8	Belt
303,414	60	1,324,280	24	4.2	3,758,635	10	1,625,141	24	2.6	7,517,270	11	61,390	413,415	154,860	1,686,531	6.1	C. of N. J.
193,734	1	524,951	3	2.6	2,401,725	15	765,844	—4	2.4	3,858,091	13	49,003	196,441	158,790	814,847	6.6	C. & E. I.
23,766	16	297,099	42	3.7	964,236	21	387,290	45	3.5	1,293,400	22	2,280	55,715	3,535	389,570	12.8	C. & I. M.
53,356	—2	219,474	—1	4.8	544,888	3	318,743	—1	4.6	821,561	6	21,917	77,250	.....	340,660	18.1	C. & W. I.
87,304	—38	323,457	—22	4.2	928,900*	—9	535,411	—12	5.5	1,566,188*	—7	32,318	.....	.....	567,729	8.7	C. I. & L.
75,220	—10	360,625	40	6.1	710,233	5	525,067	37	5.1	1,231,593	18	5,371	40,305	.....	530,438	13.4	D. T. & I.
271,826	—9	756,642	—8	5.5	1,639,454	18	1,149,761	—17	4.8	2,866,664	15	51,419	313,523	11,038	1,201,180	8.7	E. J. & E.
76,133	7	298,954	1	4.0	903,378	11	420,170	1	4.5	1,121,799	11	8,107	30,736	23,221	428,277	10.6	Ill. Term.
189,591#	19	1,283,271	13	3.9	3,984,929	12	1,495,161	22	3.4	5,177,982	8	9,510	93,675	.....	1,504,671	8.1	Long Island
3,345,186#	13	30,177,459	5	4.4	81,587,140	15	38,173,115	7	4.1	111,122,198	15	1,064,791	5,590,816	.....	39,237,906	11.6	Penn.
129,380	22	139,375	54	4.9	344,598	68	234,719	67	3.1	938,884	18	3,950	15,186	.....	238,669	3.7	P. R. S. S.
320,940	35	3,498,853	18	7.1	5,932,852	19	4,422,461	8	4.8	11,161,700	15	50,611	736,397	193,584	4,473,072	10.1	Reading
309,569	36	938,170	—18	3.1	3,621,826	40	1,368,894	10	3.1	5,258,105	21	73,791	414,199	92,447	1,442,685	11.7	W. Md.
230,244	28	868,010	—1	4.1	2,537,155	20	1,195,381	3	3.7	3,898,809	18	11,301	259,629	33,100	1,206,682	10.6	W. & I. E.
7,951,175	..	48,120,343	..	4.1	139,410,354	..	61,682,547	..	3.0	204,366,192	..	1,593,235	10,191,937	2,681,262	63,275,782	9.7	
608,720	4	4,087,031	25	3.2	15,397,352	15	5,086,282	16	2.6	23,372,170	14	226,667	2,079,053	384,727	5,312,949	7.1	C. & O.
266,436*	89	5,825,465	13	4.2	16,571,034*	9	7,416,493	8	4.0	22,019,045*	12	270,237*	.....	.....	7,686,730*	13.4	N. & W.
237,481	40	766,545	40	....	1,077,462	10	1,051,321	40	5.6	2,255,652	7	25,541	25,644	3,884	1,076,862	15.4	R. F. & P.
176,411	—23	2,262,568	23	4.7	5,796,200	54	3,028,868	—19	5.7	7,726,995	54	28,986	280,099	35,951	3,057,854	26.2	Va.
1,289,048	..	12,941,609	..	4.0	38,842,048	..	16,582,964	..	3.6	55,373,862	..	551,431	2,384,796	424,562	17,134,395	11.3	
144,581	—1	630,269	—3	7.2	1,069,956	29	885,677	7	5.0	2,118,848	22	15,770	60,608	.....	901,447	14.2	A. & W. P.
120,790	8	226,496	—1	6.6	409,649	..	348,080	—2	4.6	897,621	..	4,779	11,566	.....	352,859	11.2	A. B. & C.
787,613	—18	2,333,237	13	3.6	7,676,899	22	3,512,575	—4	3.1	13,883,461	15	146,783	829,765	.....	3,659,358	9.4	A. C. L.
374,476	12	713,101	18	4.0	2,102,853	10	1,285,270	28	3.8	4,031,466	11	30,644	206,742	202,468	1,315,914	9.3	C. of G.
66,536	3	107,831	—13	3.1	4,13615	55	167,273	—7	2.7	736,730	30	10,878	15,891	.....	178,151	9.6	C. & W. C.
100,194	—13	347,313	19	5.8	711,332	10	492,633	17	4.5	1,302,328	10	24,223	98,928	7,187	516,856	12.7	Clinchfield
28,019	—41	118,803	—5	12.6	112,928	—30	127,810	10	6.7	229,785	—31	4,344	7,517	5,183	132,154	13.5	C. & G.
276,938	16	1,225,320	6	10.6	1,373,088	17	1,764,817	1	8.0	2,637,741	20	26,811	43,974	48,533	1,791,728	21.5	F. East Coast
57,940	..	77,406	..	5.6	164,335	..	115,989	..	4.2	330,881	..	2,018	3,076	.....	118,007	11.0	G. & F.
623,589	..	923,493	—26	3.2	3,441,375	36	1,413,263	—21	3.2	5,214,315	22	90,428	1,090,998	44,974	1,503,691	11.0	G. M. & No.
2,082,819	11	4,728,410	14	3.5	16,263,590	20	5,989,958	13	2.5	27,927,193	14	780,818	1,829,149	609,482	6,770,776	8.0	I. C.
1,264,941	6	6,434,649	4	4.6	16,695,126	34	9,525,637	9	4.5	25,320,999	29	182,146	1,485,116	.....	9,707,783	13.4	L. & N.
81,192*	..	49,427	15	....	129,521*	..	69,529	—22	....	300,809*	..	307	1,783	.....	69,836	9.3	Miss. Central
226,981	3	1,467,967*	27	8.7	2,034,225	32	2,136,245*	20	7.1	3,592,303	18	Not Sep.	.....	.....	2,136,245	17.5	N. C. & St. L.
179,230	—7	387,167	15	....	93,589	..	498,893	14	10.3	522,618	..	34,289	.....	.....	533,182	14.5	N. & S.
1,134,424	3	3,212,411	17	4.7	8,192,566	12	4,396,496	12	3.6	14,304,221	9	106,639	417,036	240,186	4,503,135	11.5	Seaboard A. L.
2,799,736	—3	5,073,950	7	4.2	14,300,057	—1	7,544,502	8	3.3	27,337,540	2	451,068	2,139,991	.....	7,995,570	7.0	Southern
72,934*	26	213,420	32	7.5	339,495*	29	234,208	26	4.3	661,347	20	Not Sep.	19,349	.....	234,208	21.0	Tenn. Cen.
....	..	....	..	....	....	..	....	..	....	....	..	....	....	.....	....	....	Georgia
97,476	..	293,343	..	5.7	611,796	..	446,156	..	4.3	1,235,076	..	9,445	21,588	.....	455,601	....	Georgia Lines
10,422,933	..	28,270,670	..	4.5	75,524,199	..	40,508,955	..	3.7	131,380,199	..	1,911,945	8,261,489	1,158,013	42,420,900	10.6	
1,570,139	—10	3,961,544	—20	3.4	13,739,993	10	7,127,823	15	3.8	22,052,138	6	179,209	2,790,453	.....	7,307,032	10.0	C. & N. W.
383,009	8	434,191	..	2.8	1,829,569	40	615,421	13	1.9	3,903,182	19	19,312	390,727	3,805	634,733	4.8	C. G. W.
2,848,357	2	6,656,168	—2	5.0	16,009,739	4	10,001,160	4	4.5	27,526,716	1	387,591	962,337	411,495	10,388,751	11.9	C., M. St. P. & P.
443,285	—2	574,115	—17	3.3	2,056,350	—20	1,252,509	—2	3.1	4,887,612	—3	29,530	182,322	202,564	1,282,039	8.6	C. St. P. M. & O.
187,724	9	642,735	21	3.7	2,047,782	29	1,272,519	—2	4.1	3,716,604	27	35,170	131,799	32,839	1,307,689	12.6	D. M. & I. R.
68,518	25	131,353	6	7.7	204,805	13	202,732	20	4.0	598,331	22	1,648	45,834	3,755	204,380	9.7	D. S. S. & A.
48,190	7	66,635	—9	7.0	114,122	—9	250,690	—7	7.7	392,803	7	1,685	3,734	.....	208,375	17.5	D. W. & P.
1,911,894	8	6,222,442*	2	5.9	12,732,087*	39	9,338,661	—1	5.1	22,038,646*	16	Not Sep.	.....	.....	9,338,661	14.1	Great Northern
148,552	26	162,091	10	11.1	175,071	—15	226,934	34	5.0	545,141	—1	1,544	27,595	600	228,478	18.2	G. B. & W.
29,762	21	220,389	28	27.2	96,601	59	352,843	11	10.9	277,451	—12	12,819	4,968	.....	365,662	28.8	L. S. & I.
324,740	—2	504,262	1	5.1	1,186,733	3	1,032,393	23	5.9	2,118,498	2	7,773	106,131	.....	1,040,166	14.4	M. & St. L.
622,167	—5	1,343,290	5	5.6	3,238,533	51	2,090,391	14	3.7	6,798,899	26	66,395	369,656	75,995	2,156,786	8.8	Soo.
1,515,787	2	4,595,516	—9	4.8	11,290,764	—6	6,689,173	—15	4.0	20,213,692	7	231,505	1,568,001	N.R.	6,920,678	13.4	Nor. Pac.
26,904	7	37,688	—15	4.9	92,777	—22	61,014	—8	4.3	169,027	—13	2,397	N.R.	N.R.	63,411	10.0	Spo. Int.
334,973	53	576,748	16	8.0	870,391	14	901,404	20	4.5	2,429,758	30	31,705	123,016	17,137	933,109	16.2	S. P. & S.
10,464,001	..	26,129,167	..	4.7	65,685,317	..	41,371,667	..	4.2	117,608,298	..	1,007,283	6,706,573	751,180	42,379,950	10.7	
504,719	—8	544,942	0	1.3	5,058,057	65	804,065	3	1.4	6,918,996	49	16,109	'158,061	253,952	820,174	6.2	Alton
2,622,352	5	12,440,147	12	5.0	29,733,070	24	21,959,220	7	5.3	49,847,883	14	227,194	3,416,226	.....	22,186,414	17.1	A. T. & S. F.
12,866	—34	29,422	45	21.8	161,252	77	46,156	7	2.4	231,796	66	1,153	5,153	.....	46,806	11.7	Att. & Gar.
2,319,214	—10	4,048,538	—17	2.5	18,930,430	3	8,243,360	—12	3.6	27,925,674	4	736,110	2,070,560	571,315	8,979,470	12.5	C. B. & Q.
1,033,635	—15	4,638,802	—11	4.4	12,646,529	9	6,991,268	—12	3.8	21,714,775	4	295,646	102,639	66,484	7,286,914	11.7	C. R. I. & P.
111,461	9	150,869	—43	2.2	797,754	—15	293,675	—28	2.4	1,444,553	8	30,837	95,263	454,268	324,512	5.9	Colo. & S.
219,695	—18	2,142,047	—3	4.8	5,289,489	8	2,659,196	—3	3.8	8,284,995	1	21,765	401,109	.....	2,680,961	13.0	D. & R. G. W.
98,321	—17	393,284	0	5.4	871,748	15	550,988	—5	5.1	1,309,570	4	38,458	93,761	31,490	589,446	14.0	Ft. W. & D. C.
30,915	..	77,197	..	10.8	85,443*	..	118,521	..	6.2	229,276*	..	761	.....	.....	119,282	35.0	Nev. Nor.
68,388#	0	73,676	25	2.3	389,856	5	143,515	—23	2.1	825,084	1	10,207	55,836	.....	153,722	4.7	No. West. Pac.
11,962	27	98,304	3	3.4	345,643	—4	110,324	—7	2.9	453,065	—7	2,613	23,378	23,348	112,937	11.5	P. & P. U.
25,428#	—37	22,055	—28	3.1	83,496	20	37,987	—27	2.3	193,020	4	2,387	12,564	.....	40,374	....	S. D. & A. E.
1,723,572*	4	7,113,298	13	3.5	24,009,120	7	10,012,484	7	2.6	47,009,088	1	357,533	2,420,952	.....	10,370,017	8.7	So. Pac.
1,482,762*	—51	15,914,717	—16	7.8	24,418,354*	—13	23,736,214	—7	6.8	42,090,584*	—1	307,949	1,030,333	.....	24,044,163	20.0	U.P. Sys.
11,860	..	172,361	..	3.6	57,653	..	263,944	..	2.6	118,042	..	196	1,815	.....	264,140	38.0	Utah
594,592	7	1,264,252	180	16.0	934,530	—12	1,868,192	14	6.8	3,285,628	1	10,807	189,050	157,542	1,878,999	13.7	West. Pac.
.....	..	.....	..	....	.....	..	.....	..	....	.....	..	.....	.....	.....	.....	....	
10,871,742	..	49,123,911	..	4.8	123,812,424	..	77,839,109	..	4.4	211,882,009	..	2,059,222	10,076,700	1,558,399	79,898,331	13.9	
19,497	20	34,165	—2	12.5	32,989	—38	55,264	—25	5.0	133,454	3	116	638	13,128	55,380	4.6	Bur.-R. I.
202,247	..	576,446	..	....	1,492,936*	..	1,042,197	..	....	2,958,048*	..	40,437	.....	.....	1,082,634	12.1	K. C. Sou.
39,534	—27	145,510	9	3.2	544,874	3	198,778	10	2.6	898,649	8	11,271	23,910	11,329	210,049	8.2	K. C. Term.
179,543	31	545,427	7	7.1	928,203	9	889,111	5	5.1	2,061,257	..	93,061	126,622	13,125	982,172	18.1	L. & A.
52,942	—58	35,052	—1	4.2	101,999	16	49,126	25	2.3	252,177	—13	2,000	2,300	.....	51,126	5.2	M. & A.
298,236	..	1,493,212	..	....	3,572,141	..	1,913,297	..	....	5,665,985	..	3,566	263,422	22,641	1,916,863	9.0	M-K-T
2,542,348	5	6,709,497	15	5.3	15,006,588*	—8	9,127,153	—10	4.1	26,694,240	—2	118,136	1,412,844	.....	9,245,289	8.5	Mo. Pac.
297,450	7	745,506	—7	5.4	1,660,936	—20	1,160,170	—6	4.6	3,035,118	—8	13,025	114,931	None	1,173,195	11.3	Gulf C. L.
184,542	6	776,244	20	5.1	1,835,879	—1	1,019,330	—26	4.3	2,871,506	..	31,291	335,207	None	1,050,621	10.6	Intl. Gt. No.
981,763	—15	2,731,463	2	4.4	7,443,272	—6	3,966,700	—10	3.8	12,423,442	—4	74,803	.....	.....	4,041,503	10.2	St. L.-S. F.
376,520	—6	1,352,205	32	5.8	2,815,724	8	2,337,573	27	6.2	4,499,059	4	123,920	399,287	None	2,461,493	16.5	St. L.-S. W.
54,618	44	326,103	17	3.5	1,132,072	19	364,264	11	2.3	1,885,546	13	5,679	42,421	None	369,943	6.3	Term. of St. L.
715,722	1	2,014,988	1	3.3	7,403,556	19	3,274,542	—6	3.4	11,439,969	18	84,961	339,928	.....	3,359,503	10.1	T. & N. O.
104,283	—32	2,485,697	—2	8.5	3,505,008*	5	4,215,143	3	8.9	5,672,484	4	N.S.	N.S.	N.R.	4,215,143	8.3	T. & Pac.
12,124	..	19,118	..	....	.....	..	27,155	..	....	.....	..	.....	.....	.....	27,155	....	W. F. & So.
22,758	—13	14,121	2	7.5	22,815	—17	19,972	—17	2.5	69,331	—11	554	2,567	137	20,526	6.2	W. V.
5,590,211	..	18,462,886	..	5.0	44,002,177	..	27,453,120	..	4.4	74,653,641	..	558,504	2,613,939	60,360	28,011,624	11.7	
$55,863,889	..	$224,143,752*	..	4.4	$597,913,803*	..	$325,097,801*	..	3.9	$990,447,490*	..	$9,346,960‡	$56,596,883‡	$8,019,870	$334,444,761	10.8	

* $30,748,398 New and $19,059,174 Unclassified

° Including Scrap Not Reported Separately

‡ Not Adjusted to Include Scrap Not Reported Separately

highest rate of stock turnover of any year since 1930 and 1929 when total inventories represented a 3.8 months supply.

Aggregate fuel stocks on January 1 were fractionally higher than on November 1, 1940, but have remained at about the same level for two years. Rail stocks on January 1 were lower than in any other month in four years, except January 1, 1940, while crosstie stocks at the beginning of this year were almost as low as on November 1, 1940. With this exception, they were the lowest in 40 consecutive months and were $14,000,000 lower than on April 1, 1940, and $23,000,000 lower than on April 1, 1938. Storehouse stocks on January 1 were $10,000,000 higher than on December 1, 1940, $5,000,000 larger than on September 1, 1940, $8,000,000 larger than on January 1, 1940, and they were approximately $20,000,000 larger than in any month of 1939.

The annual inventories and annual consumption of materials on different roads are given in detail in tables in which the inventory and consumption figures are those reported by the railroads. Changes in inventory and consumption were determined by comparisons with the figures reported the year previous. Turnover figures were computed by dividing the consumption in 1940 by 12 to obtain a theoretical average monthly consumption and by dividing the result into the material balance. Accounting practices are not wholly uniform because of differences in the manner of interpreting accounting rules of the Interstate Commerce Commission. Both inventory and consumption figures are also influenced by differences in the practice of valuing second hand and reclaimed material and there are also differences in the practices of charging material out of stock and in disposing of unserviceable materials which are included in stock balances. Comparisons were facilitated by separating classes of materials which are governed by different policies and conditions or which are controlled by different departments. Uniformity has also been promoted by including ties at treating plants and by specifying that materials reported as "used" should be restricted to the value of materials issued to closed accounts. In practically all cases, the total inventories reported correspond to the totals reported to the Interstate Commerce Commission.

Less Material on Some Roads

Of 120 railroads reporting detailed inventory and consumption figures, 38 roads reported less fuel on hand and 18 reported less fuel consumed during 1940 than in 1939 while 47 reported less rail on hand and 28 reported less rail laid. Again, 43 railroads reported fewer crossties in stock on January 1, 1941, than one year previous and 42 roads reported smaller disbursements of crossties. In the case of storehouse materials, 41 roads reported less material on hand on January 1 than on January 1, 1940, and 21 roads reported smaller disbursements during 1940 than in 1939, while total inventories on January 1 were smaller on 39 roads and total disbursements were smaller on 16 roads.

Based on the average monthly turnover in 1940, fuel stocks on January 1, 1940, represented 39 days supply in the New England Region, 22 days in the Great Lakes, 18 days in the Central Eastern, 16 days in the Pocahontas, 40 days in the Northwestern, 38 days in the Central Western, 49 days in the Southern and 60 days in the Southwestern Region. Crossties on hand January 1 represented 19.1 months supply for railroads in the New England Region, 11.5 months in the Great Lakes, 8.9 months in the Central Eastern, 18.3 months in the Pocahontas, 7.3 months in the Southern, 9.7 months in the Northwestern, 14.9 months in the Central Western, and 8.5 months supply in the Southwestern Region. Stores stocks represented 4.6 months supply in the New England Region, 4.4 months in the Great Lakes, 4.1 in the Central Eastern, 4.0 in the Pocahontas, 4.5 in the Southern, 4.7 in the Northwestern, 4.8 in the Central Western and 5.0 in the Southwestern Region.

Iron and steel scrap on hand at the close of 1940 was 2.9 per cent of the total inventory and, when compared with sales, represented a turnover of scrap 6.3 times per year. Aggregate crosstie stocks on January 1, including ties at treating plants and unapplied crossties on the line of road, were equivalent to an outlay of approximately $215 per mile of road while rails on hand, including rails on rests, represented about $107 per mile of road.

Turnover Rapid on 40 Roads

There were 40 railroads whose material on hand, exclusive of fuel, rail and crossties on January 1, represented less than a 4.5 months supply, based on the monthly consumption in 1940. These stocks, as reported, were equivalent to a 3.7 months supply on the New York, New Haven & Hartford; 3.4 months on the Ann Arbor; 3.4 months on the Delaware, Lackawanna & Western; 3 months on the Erie; 2.4 months on the Lehigh Valley; 2.9 months on the Wabash; 2.6 months on the Chicago & Eastern Illinois; 3.7 months on the Chicago & Illinois Midland; 4.4 months on the Pennsylvania and 3.1 months stock on the Western Maryland. They represented 3.2 months supply on the Chesapeake & Ohio; 3.6 months on the Atlantic Coast Line; 3.5 months on the Illinois Central; 4.2 months on the Southern; 3.4 months on the Chicago & North Western; 2.8 months on the Chicago Great Western; 3.3 months on the Chicago, St. Paul, Minneapolis & Omaha; 2.5 months on the Chicago, Burlington & Quincy; 3.5 months on the Southern Pacific; and 3.3 months on the Texas & New Orleans. By contrast, the inventory of material, exclusive of fuel, rail and crossties, reported on January 1, represented more than a 7 months stock on the Bangor & Aroostook; the Boston & Albany; the Rutland; the Detroit & Mackinac; the Lehigh & New England; the Montour; the Florida East Coast; the Nashville, Chattanooga & St. Louis; the Western Pacific; and the Texas & Pacific.

Total materials in the hands of the railroads on January 1, 1941, were equivalent to 10.8 per cent of the operating expenses in 1940 and, as compared with this, the ratio of total inventories to annual operating expenses was as low as 4.0 per cent on the Delaware, Lackawanna & Western; 6.1 per cent on the Central of New Jersey; 4.8 per cent on the Chicago Great Western; 5.9 per cent on the Colorado & Southern; 4.7 per cent on the Northwestern Pacific; and 9.2 per cent on the Missouri & Arkansas. By contrast the total was 13.5 per cent on the Delaware & Hudson; 12.8 per cent on the Chicago & Illinois Midland; 13.4 per cent on the Detroit, Toledo & Ironton; 11.7 per cent on the Western Maryland; 13.4 per cent on the Norfolk & Western; 26.2 per cent on the Virginian; 21.5 per cent on the Florida East Coast; 13.4 per cent on the Louisville & Nashville; 17.5 on the Nashville, Chattanooga & St. Louis; 11.5 per cent on the Seaboard Air Line; 14.0 per cent on the Chicago & North Western; 14.1 per cent on the Great Northern; 13.4 per cent on the Northern Pacific; 13.0 per cent on the Denver & Rio Grande Western; 12.1 per cent on the Kansas City Southern; and 16.5 per cent on the St. Louis Southwestern.

For further comparisons with previous years reference is made to the *Railway Age* of April 6, 1940, and April 15, 1939.

Harris & Ewing

Wayne Coy

Harris & Ewing

Charles West

Harris & Ewing

Nelson Lee Smith

Coy Heads New Transport Board

A newspaper man (lately a W. P. A. official), a former Congressman, and a utility commissioner have grave and unique task of formulating consistent national transport policy

WASHINGTON, D. C.

PRESIDENT Roosevelt has designated Wayne Coy of Indiana as chairman of the Transportation Study Board called for in the Transportation Act of 1940, announcement of which was made on March 20, and noted briefly in last week's issue. The other two members of the board, whose names President Roosevelt has sent to the Senate for confirmation, are Charles West of Ohio and Nelson Lee Smith of New Hampshire.

Mr. Coy is now serving as Assistant Federal Security Administrator, while Mr. West is a former Democratic member of Congress from Ohio and former Under-Secretary of the Interior and most recently served as liaison man between the President and Congress. Mr. Smith is at present chairman of the New Hampshire Public Service Commission.

Duties of the Board

Section 302 (a) of the Act provides that the board shall have the following duties:

1. To investigate the relative economy and fitness of carriers by railroad, motor carriers, and water carriers for transportation service with the view of determining the service for which each type of carrier is especially fitted or unfitted; the methods by which each type can and should be developed so that there may be provided a national transportation system adequate to meet the needs of the commerce of the United States, of the Postal Service and of the national defense;

2. To investigate the extent to which right-of-way or other transportation facilities and special services have been or are provided from public funds for the use, within the territorial limits of the continental United States, of each of the three types of carriers without adequate compensation, direct or indirect, therefor, and the extent to which such carriers have been or are aided by donations of public property, payments from public funds in excess of adequate compensation for services rendered in return therefor, or extensions of government credit;

3. To investigate the extent to which taxes are imposed upon such carriers by the United States, and the several States, and by other agencies of government, including county, municipal, district, and local agencies;

4. And lastly, the board is further authorized, in its discretion, to investigate or consider any other matter relating to rail carriers, motor carriers, or water carriers, which it may deem important to investigate for the improvement of transportation conditions and to effectuate the national transportation policy as declared in the Act.

The board is required by the law to transmit to the President and Congress on or before May 1, 1941, preliminary reports of the studies and investigations that it has carried on, together with such findings and recommendations as it is prepared to make at that time. In addition to the preliminary reports, the board is required to submit to the President and Congress an annual report, a final report, and such other reports as it may deem necessary, together with any findings and recommendations based on these reports. Under the Act, the board will cease to exist two years from September 18, 1940, unless the President, as he is authorized to do, extends it for an additional period which shall not exceed two years.

The members of the board will receive $10,000 a year, and they are authorized to employ a secretary at $7,500

a year and a general counsel at $9,000 a year. They are also permitted to employ such experts, assistants, special agents, examiners, attorneys, and other employees as they feel are necessary to perform their allotted tasks. The board is also authorized to utilize the services of other departments of the government to the extent that such utilization will not unduly interfere with the performance of their duties. The Act also provides that the members of the board and its employees may be given free transportation by railroads, motor carriers, and water carriers while traveling on official business. The board is also given the power of subpena to require witnesses to testify before it and to produce necessary documents.

To get its work started, the Senate, on March 20, at the suggestion of Senator Hill, Democrat of Alabama, adopted an amendment to the deficiency appropriation bill carrying an immediate appropriation of $50,000 for the work of the board.

However, the $50,000 item was eliminated by the Senate-House Conference Committee on the bill, which filed its report March 25. Representative Woodrum, Democrat of Virginia, ranking house member of the conference committee, stated that the conferees had eliminated the item because there had been no budget or congressional hearings on it. He went on to say that he was unable to understand the haste in seeking the appropriation when there had been a six-months delay in appointing the Board. Moreover, he added, some members of Congress seem to want more information as to the reason for the board and just what it is supposed to study.

Coy Has Newspaper and Relief Background

Mr. Coy was born on November 23, 1903, in Shelby County, Ind., and was graduated from Franklin College (Indiana) in 1926 with the degree of Bachelor of Arts. While in college he was a part-time editorial employee of the Franklin Evening Star and after graduation from college became city editor of that paper, a position which he held until 1930, when he purchased the Delphi (Indiana) Citizen, a weekly newspaper in northern Indiana.

In 1933 Mr. Coy became undersecretary to Governor Paul V. McNutt, serving at the same time as a member and secretary of the State Clemency Commission and secretary of the Governor's Commission on Unemployment Relief. In August, 1934, he resigned as undersecretary to the Governor to become Director of the Governor's Commission on Unemployment Relief and Director of the State Welfare Department. In June, 1935, he was appointed Indiana Administrator of the Works Progress Administration and for a period of approximately one year was also field representative of the Works Progress Administration, having charge of that program in several states, including Ohio, Kentucky, West Virginia, Pennsylvania, and New Jersey, as well as the state of Indiana.

In the early part of 1936, after the Indiana General Assembly had passed legislation putting into effect the Social Security legislation of the federal government in Indiana, Mr. Coy was named by Governor McNutt to reorganize the State Welfare Department. He resigned this position in 1937 to go with Mr. McNutt to the Philippine Islands as administrative assistant to the United States High Commissioner, returning to the United States in May, 1939. For a period of two months and a half he was on the staff of the Director of the Bureau of the Budget working on reorganization problems and in July, 1939, became assistant administrator of the Federal Security Agency under the Administrator, Mr. McNutt.

Currently, the chairman of the board has been serving as a member of the President's Advisory Committee on Selective Service and on the Joint Army and Navy Committee on Welfare and Recreation.

West, Born in 1895, Is Board's Oldest Member

Mr. West was born at Mount Vernon, Ohio, on January 12, 1895, and is a graduate of Ohio Wesleyan University. He also spent three years in graduate study at Harvard University in preparation for the degree of doctor of philosophy. During the latter part of the Wilson administration he served as American vice-consul at Naples, Italy. He has also been an instructor in political science at Harvard and at the College of Wooster, and for a time was professor of political science at Denison University.

Mr. West's political career began when he was elected to the Seventy-second and Seventy-third Congresses as a representative on the Democratic ticket from the 17th Ohio district. In February, 1935, he was named special assistant to the Governor of the Farm Credit Administration. He later left this position to become Undersecretary of the Interior, serving in that position from August 5, 1935, to May 10, 1938. His latest positions in the government have been those of liaison man between the President and Congress and a member of the Processing Tax Board of Review in the United States Treasury Department.

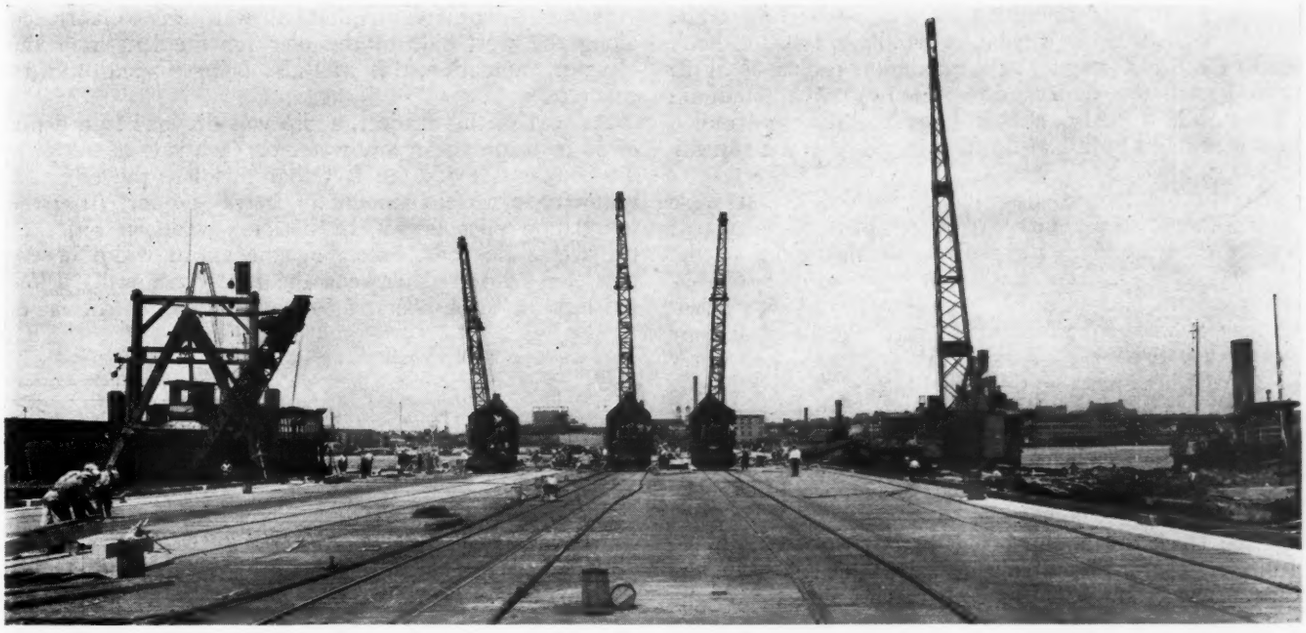
Smith Has High Scholastic Honors

Mr. Smith was born on February 15, 1899, in Baltimore, Md., and was graduated from Dartmouth College with a Bachelor of Arts degree, magna cum laude, with highest honors in economics, in 1921. He pursued his graduate work at the Amos Tuck School of Administration and Finance at Dartmouth and at the University of Michigan where he received his doctorate in 1928.

Mr. Smith has taught economics at Dartmouth and at the University of Michigan. He was named to the New Hampshire Public Service Commission in 1933 and has been chairman of that body since 1934. From 1929-1931 he served as a member of the New England Governors' Railroad Committee, and he has also been a member of the Committee of State Commissioners cooperating with the Interstate Commerce Commission in the general freight rate and passenger fares cases from 1934-1937. He was president of the New England Association of Utilities Commissioners in 1935-1936.

The new board member is also a member of the National Association of Railroad and Utilities Commissioners and served as president of that organization in 1938-1939. He is a member of the American Economic Association and is the author (with Bruce W. Knight) of Economics, Volume 1, 1929—Volume 2, 1930; and "The Fair Rate of Return in Public Utility Regulation" (Hart, Schaffner and Marx prize essay of 1928) 1932. He is listed as an independent in politics.

SWITZERLAND, AN ISOLATED REPUBLIC in the midst of nations at war, is nevertheless continuing forthrightly its program of electrification of the government-owned railroad system. During the next five years 63 additional miles will be electrified, in addition to 46 mi. of the line between Lucerne and Interlaken which currently is being equipped for electric traction. The cost of the five-year program is estimated at 12,500,000 francs ($2,875,000). Its completion will give the country a total of 1,442 route-mi. of electrified railroad.



This View, Showing the Three Locomotive Cranes, as Well as the Derrick Boats, Is Strikingly Illustrative of the Amount of Equipment That Was Used on the Job

"Sea-Going" Locomotive Cranes Expedite This Pier Job

Construction of a large timber structure by the B. & O. also speeded by the use of power tools and high-early-strength concrete

PRINCIPALLY through the use of three locomotive cranes, operating as "sea-going" units, but also with the aid of a number of other expedients, the Baltimore & Ohio was able to construct a large open-top timber pier at Locust Point, Baltimore, Md., recently with unprecedented speed. In fact, the road's engineering department was able to deliver the pier for operation in 68 days. Aside from the novel use of the locomotive cranes, other expedients that contributed to the high rate of construction included the use of high-early-strength concrete in the pier substructure and a high concentration of portable power tools on the job.

To Handle Export Cargo

In the spring of 1940, the B. & O., in common with other railroads with tide-water connections on the Atlantic Seaboard, was confronted with the necessity of handling a sudden and substantial increase in the export movement of heavy cargo occurring as a result of war orders placed in this country by Great Britain and her allies. Considering its existing harbor facilities at Baltimore inadequate to handle ths increased business, the B. & O. decided to augment them by the construction of a large open-top timber pier equipped with traveling gantry cranes. In coming to this decision it was apparent that, to be effective, the new facility would be needed almost immediately, thereby imposing the necessity of constructing it with the utmost speed.

The B. & O. has a large yard on Locust Point at Baltimore, which serves the railroad's dock facilities on the west bank of the Northwest branch of the Patapsco river. Years ago these facilities included a large grain elevator, known as Elevator B, which was located between Piers 4 and 5. This elevator, which extended out into the river a distance of about 385 ft., was destroyed by fire down to the foundation in 1922, and was not rebuilt. The substructure of the elevator, consisting of a series of stone masonry walls carried on timber piles, remained intact and it was decided to incorporate it in the new pier. This circumstance in itself had a material effect in shortening the period of construction. Incidentally, notwithstanding the fact that they had been in service since about 1885, the timber bearing piles in the elevator foundation were found to be in excellent condition.

Details of the Pier

The new pier is 104 ft. wide, which is approximately the same width as the old elevator foundation, and is about 720 ft. long on the center line, the outshore end being constructed on an oblique angle with the center line to conform to the port warden's channel line. Known as Pier No. 4 West, it has six tracks extending its full length, of which the two nearest the west side of the pier are spanned by two 10-ton traveling gantry cranes operating on the same pair of crane rails, these rails being 32 ft. 6 in. apart. Each of the two cranes, which are identical, consists essentially of a motor-operated

traveling gantry surmounted by a full-revolving crane having a 50-ft. boom capable of handling a 10-ton hook load or a 65-in. magnet at a maximum radius of 51 ft. 6 in. (from the center of rotation) or at a minimum radius of 28 ft. Also, a 3-ton hook load may be handled at a maximum radius of 56 ft. 6 in. The crane runway is 600 ft. long.

Except for the existing foundation walls that were incorporated in the new structure, it is of untreated timber construction. Beyond the outshore end of the old elevator foundation, the substructure consists of timber-pile bents on 5-ft. centers, each embodying 21 vertical bearing piles. In addition, alternate bents have four spur piles, two at each end. At the mean low water level, each bent has two 6-in. by 12-in. horizontal clamps or sway braces, one on each side, while girt bracing of the same type is provided at each third longitudinal row of piles. The bent caps consist of 12-in. by 12-in. timbers on which the 3-in. plank deck is supported by means of 3-in. by 12-in. joints.

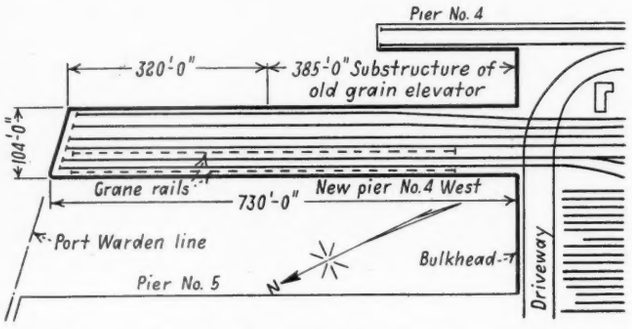
Each track rail is supported directly on two 8-in. by 16-in. stringers, placed side by side, which bear on the caps. The crane rails are each carried directly on the top flange of a 16-in. by 8½-in. by 58-lb. wide-flange beam, and directly under each of these beams provision is made in the substructure for carrying the greater load imposed by the cranes. At the inshore end of the timber portion of the substructure (where it joins the existing masonry foundation), the piles in six of the bents are cut off at the mean low water level and, above this level, these six bents are of frame construction.

The Old Foundation

For the most part, the old elevator foundation consisted of a series of 28 low transverse stone-masonry walls, spaced an average of about 12 ft. apart. At their easterly ends, the transverse walls were connected by a longitudinal wall of similar construction. The walls extend down to a level slightly above mean low water, at which level they are each supported on a timber platform bearing directly on the foundation piling. For a distance of about 55 ft. at the inshore end of the old substructure, the otherwise symmetrical arrangement of the masonry walls gave way to an irregular layout.

The method that was adopted for incorporating the old masonry walls in the new pier called for their use as bents with timber caps, to support the same type of stringer, joist and plank-deck construction that was used in the remainder of the structure. For this reason it was necessary that the tops of the walls present a smooth even surface, and to this end they were cut down where necessary and capped with concrete. Also, using the stone that was removed from the tops of the transverse walls, a new longitudinal wall was constructed along the west side of the pier for the length of the elevator foundation, this wall also being topped off with concrete.

As part of this project, a slip was dredged to a depth of 35 ft. below mean low water on each side of the pier. To compensate for the fact that this had the effect of removing a certain amount of lateral support from the foundation piles under the masonry walls, a series of transverse tie rods, extending the entire width of the pier, were inserted between the transverse walls below the level of the timber platforms. These ties consist of



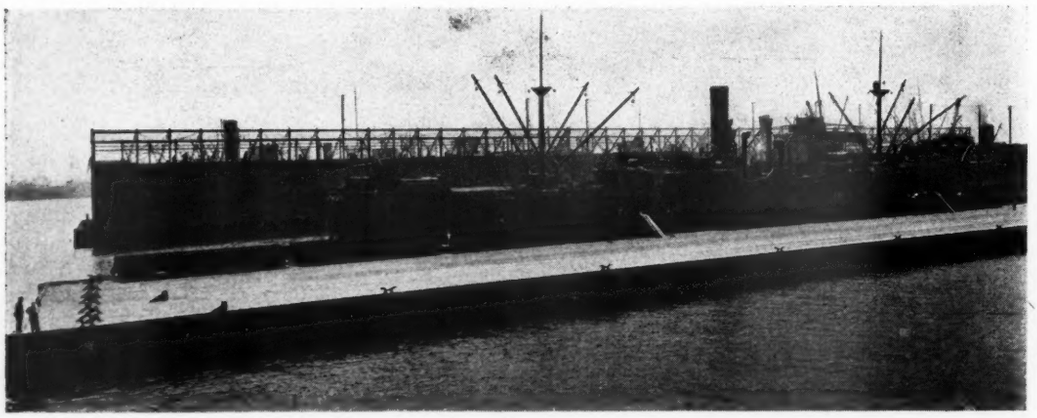
Layout Plan of the New Pier That the B. & O. Has Constructed at Baltimore, Md.

2-in. round rods fitted with turn-buckles, and each of them terminates at both ends in 18-in. by 18-in. steel bearing plates which bear against timber blocking and walers placed against the outside piles.

Construction Quantities

Work on the construction of the new pier was started on May 28, 1940, and the engineering department was given only 90 days in which to complete the project. That this promised to be no easy task is evidenced by a glance at some of the construction quantities. These included the driving of 1,600 piles, ranging from 65 ft. to 80 ft. in length and totaling 102,257 lin. ft.; the framing and placing of 1,053,944 ft. b. m. of timber; the removal of 1,396 cu. yd. of old stone masonry, 209 cu. yd. of which was replaced elsewhere; and the placing of 571 cu. yd. of concrete, 135,319 lb. of hardware, 87,495 lb. of steel beams, and 16,000 ft. of rails. The work also included the dredging of 39,448 cu. yd. of material from the slips and of 5,334 cu. yd. of material from between the masonry walls.

During the first few days that work on the pier was under way, conventional equipment and methods of construction were employed. Reliance for handling con-



The New Pier in Operation on August 5, 1940, Two Days After It Was Completed

struction materials going into the pier was placed entirely on floating equipment, consisting of two derrick boats, one with a 90-ft. boom and the other with a 60-ft. boom, and a floating pile driver. The latter unit, equipped with a single-acting hammer, was used for driving the bearing piles, while one of the derrick boats, fitted with swinging leads and a double-acting steam hammer, drove the spur piles.

After the work had been in progress for about three weeks, it became evident that, unless some way could be found to expedite it, the pier would not be ready on time. The idea was then conceived of utilizing locomotive cranes for handling the materials. Floating equipment such as the derrick boats is inherently slow and cumbersome in its movements, and it was felt that if some way could be found to take advantage of the greater maneuverability and speed of locomotive cranes the progress of the work could be accelerated to a marked degree.

Use of Locomotive Cranes

The answer proved to be relatively simple—the tracks were merely projected out onto the pier as rapidly as progress in the construction of the substructure permitted, and three locomotive cranes were placed in operation one by one as sufficient trackage became available to accommodate them. Obviously, the objective was to give the locomotive cranes access to the entire pier as quickly as possible, but at the same time to provide trackage out as far at any given time as the progress of the work permitted. Accordingly, the work of cutting down and capping the transverse masonry walls was begun at the inshore end and carried progressively outward.

Looking Inshore From the Outer End of the Old Foundation on June 20, Five Days After the First Locomotive Crane Was Placed in Operation

The laying of the third track from the easterly side of the pier was kept abreast of the substructure work, and a locomotive crane was placed in operation on this track on June 15. With this crane in operation, materials could be unloaded from barges moored along the east side of the pier and deposited at any point throughout the width of the structure. It is apparent that the rate of progress that was made in projecting the track out onto the pier was limited by the rate at which the concrete caps on the masonry walls could be completed and placed in service. This naturally suggested the use of high-early strength concrete, which made it possible for the caps to take a load 48 hr. after being placed, as compared with the 10-day curing period that would have been required for standard concrete.

Looking Inshore Over the Partially Completed Pier on July 15, at a Time When All Three Locomotive Cranes Were in Operation

Shortly after the first locomotive crane had been placed in operation, the track on which it was operating had been extended to the outshore end of the old elevator foundation. From this point, as the pile bents were driven and capped, the track was projected still farther until it eventually reached the end of the pier. Meanwhile, the most easterly and westerly tracks were being projected, and the other two cranes were placed in service as quickly as possible, one on June 19 and the other on July 9. These were all 25-ton steam cranes with 60-ft. booms. Switch connections between the tracks on shore made it possible for the cranes to be shifted from track to track as the exigencies of the work required.

Materials Handled

In the building of that portion of the pier on the old foundation, the locomotive cranes were used to handle practically every type of material going into the construction, including the caps, stringers, joists, deck planks and other timbers, the wide-flange beams, the rails, and the concrete. The latter material, part of which was transit-mixed and the remainder mixed at the site, was handled into position by one of the cranes in two-yard buckets. The cranes also proved useful in handling the pieces of stone masonry that were removed from the tops of the transverse walls. In the construction of the outshore end of the pier, the piles, braces and caps were handled into position by the pile driver and the derrick boats, but all material above the caps were placed by the locomotive cranes. It is estimated by the railroad that, by using the locomotive cranes on this project, the construction period was shortened about 30 days.

(*Continued on page 575*)

Superheater-Unit Research*

Results of laboratory study of units of many designs for the Type A superheater—Two units are giving improved performance in service

By Arthur Williams

The Superheater Company, East Chicago, Ind.

THE locomotive superheater design determines the heating surface and gas area of the boiler barrel. These in turn influence the evaporation obtainable from the boiler and the efficiency of heat absorption. For a given boiler pressure, the steam pressure at the cylinders depends upon the pressure drop through the superheater units and header, and the temperature of the steam is the result of the heat absorbed by the superheater. These two factors, the steam temperature and pressure at the cylinders, control the steam rate or cylinder efficiency. From these considerations it is clear that the over-all performance of the steam locomotive is very closely controlled by the superheater design.

The first practical superheater to be used in this country was of the design known as the Type A which is still in use on a great number of locomotives. The early efforts of The Superheater Company were directed towards obtaining a practical superheater construction that would be satisfactory for operating conditions in this country. The forged return bend eliminated all joints except at the header. The method of attaching the units to the header by ball joints and clamps was developed so that in combination with the forged return bends in the unit, the superheater became a practical and reliable piece of apparatus.

With the increase in power and evaporation of the locomotive it was necessary to change the superheater design so that increased superheat could be obtained to give maximum cylinder efficiency and at the same time accommodate the increased steam flow through the superheater resulting from high rates of evaporation. The result was the Type E superheater, which still remains the best superheater design. Compared to the boiler and superheater with the Type A design, there is from 8 to 10 per cent increase in the total flue evaporative heating surface for the same length of flues, with 3 to 6 per cent increase in the gas area through the boiler and 35 to 50 per cent increase in superheater heating surface. At the same time it is possible to obtain an increase in steam area through the superheater. These factors give increased boiler efficiency, increase in maximum evaporation and higher superheat.

Stepping Up the Type A Superheater

While the Type E superheater represents the best locomotive superheater design, The Superheater Company recognized that there were a great number of locomotives equipped with Type A superheaters in 5½-in. and 5⅜-in. flues. In 1930 a research program was started to study superheater design for use with these large flues. It was desired to find a unit which would be interchangeable with the Type A, would have approximately the same draft loss so that no changes in drafting would be necessary in an existing engine, and would give increased superheat, improvement in heat-absorption efficiency of the flue and unit and the same or less pressure drop through the unit. Such a unit could be applied to existing locomotives with a minimum of expense and would give either decrease in fuel consumption or increase in power. From the practical standpoint the unit had to be sufficiently flexible in structure so that no trouble would be encountered with warping or with leaking header joints, and easy to keep clean from cinders and slag.

In determining the course which such research should take, attention was first given to existing data on the heat transfer from hot gases to a colder metal surface. Considerable work has been done on this subject and it is possible to calculate the film coefficient with fair accuracy. This coefficient depends upon the viscosity, conductivity, density and velocity of the gas in question, and the physical dimensions of the flue or tube in which the gas is flowing. The film coefficient will be in terms of B. t. u. per sq. ft. per hr. per deg. F. temperature difference, which gives the heat that will be transferred for each square foot of heating surface and for each degree difference in temperature between the mean gas temperature and the metal temperature. It is this last item, the temperature difference, which makes the exact calculation of heat transfer for a locomotive flue and superheater unit extremely difficult. The gas temperature is rapidly changing along the flue and, in the case of a Type A unit, heat is being transferred simultaneously to five surfaces, all of which are at different temperatures.

For a given superheater design, it is possible to use formulas with coefficients that have been determined by experiment. Considerable work along this line has been done by Lawford H. Fry and published in various papers and books. For the superheater research under consideration it was recognized that the various forms of units that could be tested might differ so widely from the Type A design that it would not be possible to use empirical coefficients. For these reasons it was decided to conduct the research by actual tests of a number of different superheater unit designs.

To make such tests with full sets of superheater units in a locomotive was out of the question from the standpoints of time and expense, and in 1930 a test apparatus was built which could test one superheater unit at a time, under operating conditions similar to those obtained in road service, with exact control of all the factors involved. On a locomotive, the results obtained from the superheater depend upon the weight of products of combustion flowing through the superheater flues, the temperature of the products of combustion at the back

* From a paper presented before the February 26, 1941, meeting of the Metropolitan Section, A. S. M. E.

tube sheet and the steam flow through each unit. The quality of the steam entering the superheater influences the final steam temperature but for purposes of comparison it can be assumed that the steam will be dry. A number of road tests were analyzed, and curves were drawn representing the relation between weight of gas flow, temperature at the back tube sheet and steam flow through the unit. From these curves sufficient settings were decided upon to give a picture of the superheater unit performance over a wide range of capacity. By adjusting the three controlling factors in accordance with actual road operation, it was felt that the results obtained in the test apparatus could be expected to be the same in road service. Subsequent tests confirmed this reasoning.

Unit No. 1

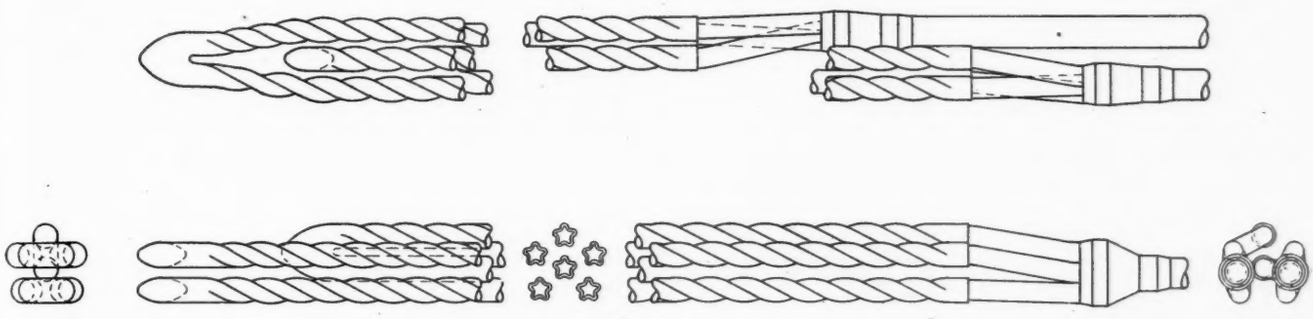
Fig. 1

Units Studied in Five Groups

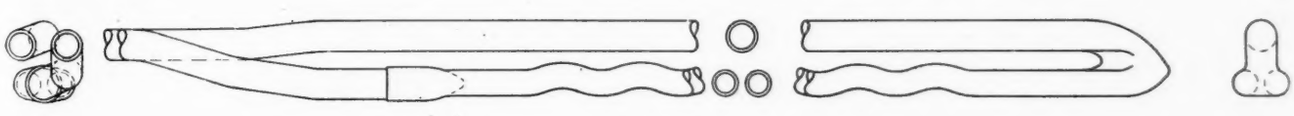
To date, 43 different designs of superheater units have been tested. The majority of this work was done in 1930 and 1931, although tests have been conducted up to the present time and the test apparatus is now a permanent part of The Superheater Company's facilities at East Chicago for further development of superheater design. To give a picture of the work done without going into detail for each one of the 43 designs, 13 of the units tested will be discussed, since they show various aspects of this research. These units are shown in Figs. 1 to 5, and can be divided into five groups.

One of the first attempts to obtain increased superheat was to use a larger number of smaller pipes so that increased superheater heating surface was obtained with approximately the same gas area. This group is represented by Fig. 1, unit No. 1. A fair increase in superheat was obtained but the increased friction surface gave a decided increase in draft loss. If this unit were applied in a locomotive boiler the increased resistance to gas flow would cause a greater proportion of gas to flow through the small tubes and the increase in superheat desired would not be obtained.

In the second group, Fig. 2, units numbers 2-A and 2-B represent designs which give increased turbulence on both the outside and inside of the unit. Unit No. 2-A gave an increase in superheat that was offset by the increase in draft loss due to turbulence on the gas side. Unit No. 2-B was designed with a greater gas area so that the draft loss was satisfactory, but the superheat obtained was slightly less than for the Type A. In general, it can be stated that for a given draft loss or pressure drop the best heat transfer is obtained with plain tubing.



Unit No. 2-A



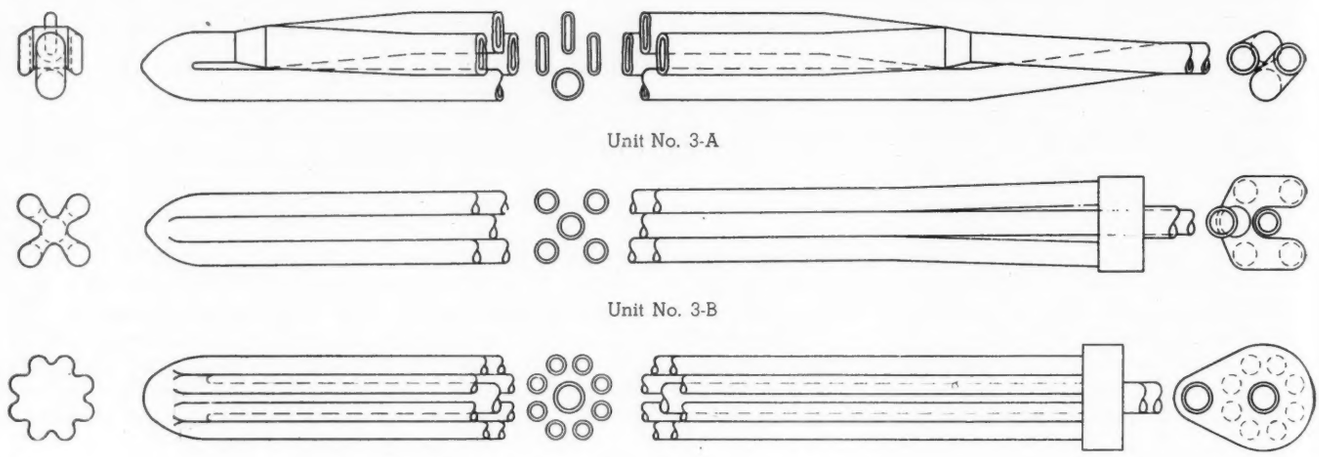
Unit No. 2-B

Fig. 2

The Counterflow Group

To obtain the maximum heat transfer for a given heating surface between a hot substance and a cold one it is usual to arrange the flows so that the two substances flow in opposite directions, giving counterflow. It is not practical to have 100 per cent counterflow in a locomotive superheater since the steam enters the superheater from the front end and also returns there. It is possible to have all of the heating surfaces in counterflow except for the return pipe and the third group of units Fig. 3, shows three different designs which do this. Unit 3-A gave approximately the same superheat as the Type A with a decrease in draft loss. It seemed from this that it should be possible to increase the heating surface of the unit and so obtain the same draft loss with an increase in superheat. Unit 3-B was designed with this in mind but it was found that with the same draft loss as the Type A unit there was no appreciable increase in superheat. Unit 3-C went still further in this direction and a good increase in superheat was obtained but the increase in draft loss was sufficient to offset the increase in superheat.

The results obtained with these three units differed considerably from what would be expected with a counterflow arrangement. This was probably due to the complicated heat transfer conditions which occur in a locomotive flue. The counterflow arrangement of heating surface decreases the mean temperature on the steam side and increases the mean temperature on the gas side. The increase of the mean temperature of the flue gas increases the heat transfer to the flue. The result appears to be a slight increase in evaporation and efficiency of heat absorption but the desired increase in superheat is not obtained.



Unit No. 3-A

Unit No. 3-B

Unit No. 3-C

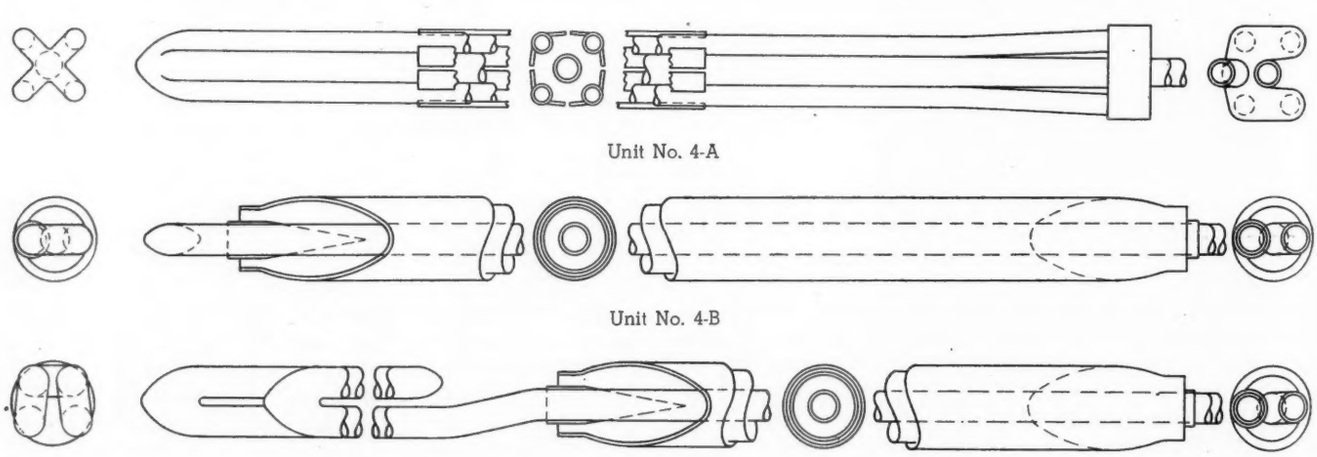
Fig. 3

The Controlled-Heat-Transfer Group

The fourth group of units Fig. 4, includes three designs in which the relative amount of heat transferred to the flue and to the superheater unit is controlled. Unit No. 4-A had the same arrangement of pipes as unit No. 3-B. Somewhat smaller pipes were used for the counterflow surface and fins were welded on in such a way that the gas flow along the flue was divided into two parts. The gas flowing between the flue and the outside of the superheater unit could transmit heat to both, but the gas flowing along the inside of the unit could transmit heat only to the unit. As far as draft loss was concerned, the increased friction surface was compensated for by an increase in gas area, so that the draft loss obtained was the same as for the Type A. Approximately 50 deg. increase in superheat was obtained for the same conditions with a decrease in the temperature of the gases leaving the flue. This unit was very satisfactory in the test apparatus and was later tested in road service.

Unit 4-B also gave a controlled gas flow but in a different manner. The counterflow surface consisted of two pipes with the steam flowing in the annular space between them. The return was by a single pipe along the center of the unit. This unit gave satisfactory results as far as superheat and draft loss were concerned, but it was felt that it would not be practical for locomotive use. The unit was rigid and there was a possibility that the differential expansion between the two large pipes could cause some trouble at the ends of the unit.

To overcome these defects unit 4-C was designed. The annular steam path with a large heating surface in counterflow to the gases was still maintained towards the front half of the flue where the low gas temperatures make counterflow desirable. The back end of the unit was made with four pipes and three return bends so that a flexible structure would be obtained, similar to the Type A unit which was known to be practical for all



Unit No. 4-A

Unit No. 4-B

Unit No. 4-C

Fig. 4

conditions of operation. At the back end of the unit, counterflow is not so essential due to the relatively high gas temperatures. This unit gave even better results than unit 4-B and was thought to be satisfactory for locomotive use. The results were about the same as for unit 4-A—that is, 50 deg. increase in superheat with a decrease in the temperature of the gases leaving the flue.

It was recognized that the test apparatus could furnish accurate figures with respect to the performance of the units as far as temperatures, drafts and pressures were concerned, but that the only way to judge the value of any unit from a practical standpoint was to put sets of units in actual locomotive service. Three sets of units to designs Nos. 4-A and 4-C were built and placed in service on three different railroads, thus obtaining varying conditions of fuel and locomotive operation. Trouble was encountered with the units to design No. 4-A due to the rigid structure of the unit. On one railroad it was difficult to keep the header joints tight, and on another road the header joints were tight, but the small pipes at the back end of the unit warped and split open. The results obtained with unit to design 4-C were very satisfactory and this design is now known as the Type HA unit. Approximately 200 sets are now in service and on order.

Fig. 6 shows the results obtained on one railroad with the Type HA unit. The locomotive was first tested with the Type A units in the engine. The type HA units were then substituted and further tests run over the same territory, duplicating as far as possible the same operating conditions. It will be noticed that the increase in superheat was approximately the same as that obtained in the test apparatus at East Chicago, confirming the accuracy of the method of testing.

In the discussion on a recent paper by C. A. Brandt, "The Locomotive Boiler,"* it was pointed out that a number of engines are being worked at much higher rates of evaporation than formerly, due to faster schedules and heavier trains. If the original superheater design had a small number of units, the pressure drop through the superheater becomes high for maximum rates of working. It is possible to obtain a marked reduction in the pressure drop through the units by using a single-loop design. Such a design will decrease the steam velocity and consequently the pressure drop. The decrease in steam velocity will also lower the heat-transfer coefficient on the steam side so that there may be a slight decrease in superheat and an increase in the superheater unit metal temperature at the back end. The simplest form of such a unit is shown by design No. 5-A, Fig. 5. When this unit was tested, the pressure drop was found to be very low but there was a decrease in both superheat and draft loss with an increase in the temperature of the gases leaving the flue. Evidently, there was not sufficient heating surface for proper design. Unit No. 5-B was an improvement in this respect and gave a very low pressure drop with the same draft loss as the Type A and a very slight decrease in superheat. To obtain an increase in superheat, unit No. 5-C was designed with fins welded to the pipes. The increase in superheat was obtained but there was also some increase in draft loss which would tend to offset the increase in superheat. This unit had spiral agitators for a short

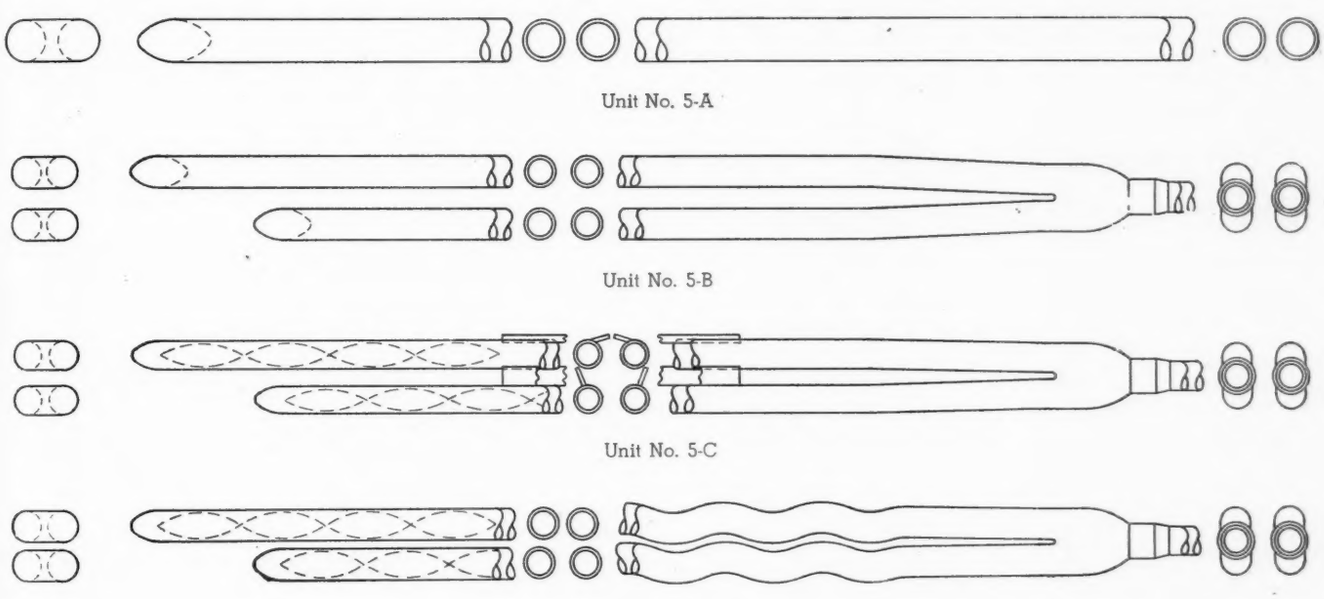


Fig. 5

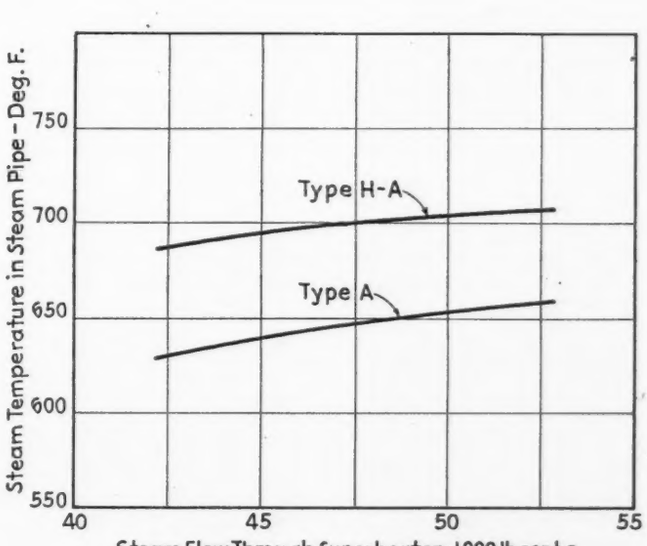


Fig. 6—Road Tests of Type A and Type H-A Units

* Presented before the annual meeting of the American Society of Mechanical Engineers at Philadelphia, Pa., December 7, 1939.

distance at the back end of the unit to give the steam greater turbulence and keep the metal temperatures down.

The desired result was obtained with no appreciable increase in pressure drop. Apparently the length of the agitators was not sufficient to cause any great difference in the pressure drop.

Several railroads have installed single loop superheaters in locomotives and have had considerable trouble with leaking header joints and warping of units due to the differential expansion of the unit pipes and the relatively stiff structure of the unit. Unit No. 5-D was designed for the particular purpose of overcoming these troubles. The pipes were waved for the greater part of their length to give a flexible structure that could absorb the differential expansion. At the same time the maximum flexibility was obtained in the connections between the units and the header. This unit also had the spiral agitators at the back end to control the metal temperatures. The results obtained in the test apparatus were similar to those for unit 5-B, giving a low pressure drop and approximately the same superheat and draft loss as the Type A. One set of these units has been placed in service and is proving very satisfactory with respect to troubles from header-joint leaks and warping of the units.

Congress Gets St. Lawrence Agreement

WASHINGTON, D. C.

FOLLOWING through on his March 18 announcement that the matter would be submitted within a few days, President Roosevelt on March 21 sent to Congress the text of an agreement between the United States and Canada, "providing for the construction of dams and power works in the International Rapids section of the St. Lawrence river, and providing for the completion of the essential links in the Great Lakes-St. Lawrence deep waterway when the governments of the United States and Canada agree that circumstances require it." Unlike the set-up in 1934, when the proposed treaty failed to obtain the necessary two-thirds vote in the Senate, the President said that the terms of the present agreement "contemplate that it shall be made effective by concurrent legislation" of Congress and the Canadian Parliament; in other words, approval on the part of the United States would come with a majority vote in both houses of Congress.

The President's brief message ended with an expression of his expectation "to request introduction, in due course, of legislation designed to make this agreement effective." The agreement was signed in Ottawa on March 19. As noted above the work immediately contemplated would be for hydro-electric power development, but the comprehensive plan of works in the International Rapids section includes also a canal and locks to by-pass the power dam proposed to be built at a point near Massena, N. Y. The estimated cost of all works in the International Rapids section is $266,170,000, including $38,578,000 assigned for "works solely for navigation."

Under the agreement, the United States could defer completion of navigation works in the International Rapids section until December 31, 1948, the date on which it undertakes to have completed also "the works in the Great Lakes system above Lake Erie required to create essential links in the deep waterway"; and the date on which Canada undertakes to have completed "the essential Canadian links in the deep waterway, including the necessary deepening of the new Welland Ship Canal and the construction of canals and other works to provide the necessary depth in the Canadian section of the St. Lawrence river." In these connections, however, there is a proviso that "if the continuance of war conditions or the requirements of defense justify a modification of the period within which such works shall be completed, the governments may, by exchange of notes, arrange to defer or expedite their completion as circumstances may require."

Reports and estimates made public with the agreement revealed that, after various proposed plans for the development of the International Rapids section had been examined, the engineering committees agreed unanimously that the so-called "238-242" Controlled Single Stage Project "was the best from an engineering and economic [sic!] point of view, bearing in mind the requirements of navigation and power and the protection of down-stream interests." Specifically, the plan agreed upon provides "for the development of all the power in one stage at power houses located at the foot of Barnhart Island, while at the same time providing for complete control of the river at a control dam located near the head of the present [Long Sault] Rapids." The construction program, said the joint statement of the United States and Canadian committees, "can be arranged so that delivery of the power can be begun and navigation provided within four years of the time when active work is initiated, time being an essential factor in the emergency."

In addition to the aforementioned $38,578,000 for works solely for navigation, the $266,170,000 total estimated cost of works in the International Rapids section includes $96,804,000 for works primarily for power, and $130,788,000 for works common to power and navigation. Under the agreement, the United States would provide funds "for the construction, including design and supervision, of all works in the International Rapids section except (1) machinery and equipment for the development of power, and (2) work required for rehabilitation on the Canadian side of the international boundary." On the basis of figures giving the breakdown of the estimates, this provision would seem to indicate that the United States would provide about $200,000,000 of the $266,170,000 expected to be spent. Among the estimated expenditures for works common to navigation and power is an item of $3,696,000 for railroad location.

A "National Defense" Project

Publication of diplomatic correspondence leading up to the signing of the agreement showed again how the Administration is justifying the project on the basis of "national defense." Moreover, the President did not even wait until the St. Lawrence Survey which he requested the Department of Commerce to set up a year ago had completed its report-making assignment. However, that Survey did its best to make its report keep pace with the executive action on which they were presumably designed to have some bearing. On March 24, three days after the President sent his message to Congress, the Survey made public its Part IV, The Economic [sic!] Aspects of the St. Lawrence Power Project. Part III has not yet been published, but Part IV meanwhile brought assurances that the contemplated development "offers a new lease on life to New York State industry, a source of cheap electricity which would make possible the resumption of manufacturing growth."

Article I of the U. S.-Canadian agreement provides for the establishment of a Great Lakes-St. Lawrence Basin Commission, consisting of not more than 10 members with each government designating an equal number. The duties of the commission would be to prepare general plans and specifications for the construction of works in the International Rapids section, prepare a schedule allocating the construction of these works to the respective governments, approve all contracts, and supervise the construction work. The aforementioned agreement of the United States to provide the bulk of the funds for works in the International Rapids section is a scheme "to counterbalance expenditures already made by Canada in the Welland Canal link in the deep waterway." Other provisions of the agreement run to such matters as the installation of equipment for power and use of water; maintenance of existing rights; diversions to and from the Great Lakes basin; and preservation and use of Niagara Falls and river.

Is Canada Being High-Pressured?

The diplomatic correspondence mentioned above was exchanged early this month between W. L. Mackenzie King, prime minister of Canada, and Pierrepont Moffat, United States minister to Canada. Mr. Mackenzie King referred to the "growing intensity" of Canada's war operations and asked if the United States were of the opinion that the project "should now be proceeded with." Meanwhile, Canada "would naturally be prepared to give every consideration to power or navigation developments which the United States may deem necessary to the prosecution of measures calculated to aid Great Britain, Canada . . . or to further the security of the United States itself."

Mr. Moffat replied by transmitting to Mr. Mackenzie King a personal message from President Roosevelt to the Prime Minister. Mr. Roosevelt said that the government of the United States thinks the St. Lawrence project "should be proceeded with and that construction should commence at the earliest possible moment." "In terms of the time factor," the President went on, "the St. Lawrence project as part of our defense program is not exceptional, since we are today appropriating money for construction of vessels of war which will not be ready for service until the completion of the St. Lawrence undertaking." Aside from the power angle, Mr. Roosevelt is "convinced that the opening of the St. Lawrence deep waterway to afford an outlet for naval and cargo ships constructed in Great Lakes shipyards, far from representing a diversion of funds and resources from the defense effort, would have the opposite effect."

In the same connection, Assistant Secretary of State A. A. Berle, one of the signatories to the agreement, said in a March 22 radio address that "We could lay down a heavy cruiser at Chicago today, and have the seaway open before she could be put into commission and put to sea. The moment work begins on the seaway, I expect you will find naval construction beginning in the Lakes—clearing seacoast yards for more immediate needs."

Earlier in the address Mr. Berle had indicated that the power phase is considered of primary importance at this time, the navigation angle being "the second big job." Also, he called the St. Lawrence project a non-partisan matter, recalling how the rejected treaty "had actually been negotiated when Herbert Hoover was President." That treaty, Mr. Berle went on, "was not ratified principally owing to the activities of the railroad and utility lobby—a lobby which, incidentally, is still on the job." And meanwhile the debate on the project has continued in extensions of remarks being inserted by members of Congress into about every issue of the Congressional Record.

"Sea-Going" Locomotive Cranes Expedite This Pier Job

(*Continued from page 569*)

A factor which served to shorten the construction period still further was the extensive use that was made of power-operated tools in framing the timbers, all of this work being done on the job. This equipment included two gasoline-operated circular saws, which were used principally for cutting the flangeway bevels on the deck planks; two air-operated chain saws for cutting off the piles and sizing the larger timbers; two air-operated hand saws for use on the smaller timbers; and 12 pneumatic wood augers. Air for the operation of these tools was supplied by two Ingersoll-Rand 360-cu. ft. compressors, and a steam-operated compressor on one of the boats.

The driving of the piles on this project was performed in two daily shifts of eight hours each, while the crews engaged on the other phases of the project worked one 10-hr. shift each day. Construction work on the pier was undertaken, as noted previously, on May 28, and was completed on August 3, although delivery of the gantry cranes was not obtained until some time later.

This project was carried out under the general direction of H. A. Lane, chief engineer of the B. & O., and under the direct supervision of Richard Mather, assistant to the chief engineer. Joseph W. Jones, resident engineer, was in direct charge of the construction work. The Empire Construction Company, Baltimore, was the general contractor on the project, while the gantry cranes were built by the Wellman Engineering Company, Cleveland, Ohio.

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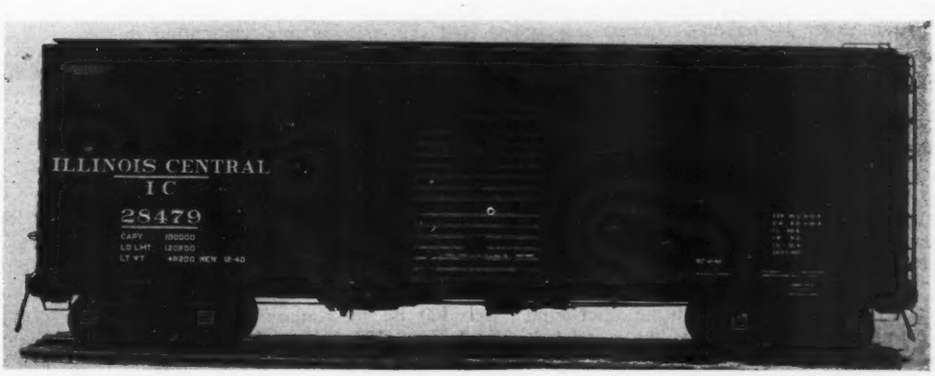

One of an Order of 1,000 Steel-Sheathed Wood-Lined Box Cars Being Built for the Illinois Central by the General American Transportation Corporation

NEWS

Cuts Mid-Continent Rates on Gasoline

I. C. C. also suggests study of multiple-car rates for slow service

Orders to make substantial reductions in carload rates and advice to consider the possibilities of reflecting the "inherent advantages" of rail transportation in multiple-car rates for a restricted or slow service are what the railroads get from the Interstate Commerce Commission's decision in the No. 28106 proceeding involving the complaint of so-called independent mid-continent refiners assailing rates on gasoline and other refined petroleum products from mid-continent origins to destinations in the Middle West. Thus did the commission find a way of granting some measure of the relief prayed for without following that recommendation of Examiner C. E. Stiles' proposed report which called for the prescription of "trainload" rates for shipments of not less than 25 tank-car loads from the origin points to destinations which are pipe-line terminals.

As to the pipe-line defendants the commission ordered the Great Lakes Pipe Line and the Phillips Pipe Line to publish reduced minimum tenders for a restricted or slow service; to reduce their rates to a basis which includes allowance for a return of only 10 per cent on investment; and to discontinue the use of so-called "proportional" rates which vary according to the ultimate rail destination of shipments moving into pipe-line terminals on the proportionals.

The commission's report occupied 119 mimeographed sheets, and it was accompanied by separate expressions from Chairman Eastman, concurring; Commissioner Porter, concurring-in-part; Commissioner Splawn, concurring; Commissioner Lee, dissenting-in part; and Commissioner Mahaffie, dissenting - in - part. Commissioner Patterson's concurrence in the results of the majority report was noted, as was the dissent of Commissioner Rogers. Among other things, Chairman Eastman found the suggestion that multiple-car quantities can be moved with savings in expense if they are moved in restricted or slow service "new and, to me, intriguing"; he went on to say that there may be much traffic which could accommodate itself to such a service, adding that "the opportunities in this direction are worthy of exploration." On the other hand Commissioner Porter called the restricted-service suggestion "a kind of last resort in a vain attempt to bolster the argument for trainload rates," which Mr. Porter still opposes.

Commissioner Splawn would have prescribed carload rates lower than those required by the majority; while Commissioner Mahaffie would have fixed reasonable maxima higher than did the majority. Commissioner Lee agreed with Mr. Porter on the subject of trainload rates, and with Mr. Mahaffie regarding the level of the carload rates which the commission should prescribe.

As noted in the *Railway Age* of May 4, 1940, page 787, where Examiner Stiles' proposed report was reviewed, the complainants' contention, in the words of the examiner, was that the commission "should require the rail defendants to publish rates which are less than maximum reasonable rates, judged by the usual standards, in order to equalize complainants' cost of transportation by rail with the cost of pipe-line transportation ultimately borne by the integrated oil companies" after dividends from the profits of their pipe-line affiliates are considered. In other words the complainants sought relief from a situation wherein they contended that by reason of profits made in transportation, the integrated companies were able to make price concessions and other concessions to jobbers and retailers of gasoline, thereby taking business from complainants.

The "trainload" rate issue was not raised until the examiner's report was published with its recommendations in that connection. Thereafter the commission reopened the case and heard oral arguments, as noted in the *Railway Age* of July 27, 1940, page 156. At that argument counsel for the railroad defendants, other than the Missouri Pacific and the Chicago, Rock Island & Pacific, opposed the examiner's recommendation. The examiner had hit upon the trainload-rate idea because he thought it was the only way in which the commission could lawfully grant relief. However, as noted above, the commission found justification for a revision of the carload rates. Like the examiner, the commission rejected the complainants' contention that it should require a revision of rail rates in order to equalize marketing opportunities; but it did find that "due to great changes that have taken place since we last passed upon the rates here under consideration... the traffic can not bear rates today that were justified at that time; in other words, that the value of the service to the shipper has materially decreased."

The newly-prescribed rates from mid-continent group 3 range from 22 cents per 100 lb. to Kansas City, Mo., to 47 cents per 100 lb. to Marquette, Mich.;

(*Continued on page 582*)

Forecast 14.9% Rise in Loadings

Shippers' boards say second quarter's traffic will be that much above 1940

Freight car loadings in the second quarter of 1941 are expected to be about 14.9 per cent above actual loadings in the same quarter in 1940, according to estimates compiled by the 13 Shippers' Advisory Boards. On the basis of those estimates, loadings of the 29 principal commodities will be 6,340,818 cars in the second quarter of 1941, compared with 5,519,565 actual car loadings for the same commodities in the corresponding period in the preceding year. All of the 13 boards estimate an increase in carloadings for the second quarter of 1941 compared with the same period in 1940.

The tabulation below shows actual carloadings for each district in the second quarter of 1940, the estimated loadings for the first quarter of 1941, and the percentage of increase.

Shippers Advisory Boards	Actual Loadings Second Quarter, 1940	Estimated Loadings Second Quarter, 1941	Per Cent Increase
New England..	103,628	113,684	9.7
Atlantic States.	604,059	683,430	13.1
Allegheny	774,645	944,908	22.0
Ohio Valley ..	732,360	817,423	11.6
Southeast	618,725	671,694	8.6
Great Lakes ..	437,272	541,129	23.8
Central Western	154,324	166,987	8.2
Mid-West	688,666	782,385	13.6
Northwest	398,903	514,690	29.0
Trans-Missouri-Kansas	251,907	270,146	7.2
Southwest	313,281	342,560	9.3
Pacific Coast .	251,150	271,849	8.2
Pacific Northwest	190,645	219,933	15.4
Total	5,519,565	6,340,818	14.9

The 13 boards, expect an increase in the second quarter of 1941, compared with the same period one year ago, in the loading of all of the 29 commodities except three. Among those showing the greatest increase are the following: Iron and steel, 38.9 per cent; ore and concentrates, 35.3 per cent; machinery and boilers, 27.3 per cent; brick and clay products, 27.2 per cent; automobiles, trucks and parts, 26.7 per cent; agricultural implements and vehicles other than automobiles, 25.5 per cent; gravel, sand and stone, 20.8 per cent; citrus fruits, 16.3 per cent; lumber and forest products, 14.2 per cent; grain, 11.6 per cent; chemicals and explosives, 10.9 per cent; lime and plaster, 10.7 per cent; coal and coke, 10.6 per cent; cement, 10.5 per

cent; all canned goods, 9.2 per cent; and cotton, 8.1 per cent.

The three commodities for which decreases are estimated and the percentages follow: Hay, straw and alfalfa, 0.6 per cent; fresh vegetables except potatoes, 1.2 per cent; and livestock, 0.7 per cent.

Status of R. F. C. Rail Loans

The monthly financial statement of the Reconstruction Finance Corporation as of February 28 shows disbursements to railroads (including receivers) of $800,319,805 and repayments of $318,219,589.

Texas Raises Highway Load Limit

The maximum load-weight of trucks operating in Texas has been raised from 7,000 lb. to 38,000 lb. under legislation just enacted by the house and senate of that state. A weight distribution formula in the new law, however, limits the gross weight of small four-wheel trucks to 28,400 lb. The law reduces the maximum continuous driving hours from 14 to 10.

Purchases—Corrections and Additions

In the digest of railway purchases appearing in the *Railway Age* of March 22, the table of selected switching and terminal companies, on page 510, is a continuation of a table on page 514. The table distributing railway purchases by states, page 510, includes materials as well as fuel and equipment. The purchases for the Burlington Refrigerator Express Company in 1940 totaled $442,062 instead of $4,420,062, as reported on page 515.

Following are reports of short line purchases in 1940 received too late for publication March 22:

	Fuel	Other Materials	Total
Detroit, Caro and Sandusky	$4,929	$13,088	$18,017
Sioux City Terminal	14,389	14,127	28,516
Tennessee	17,208	55,366	72,574

N. E. Board Sees Carloadings Up 9.7 P. C.

An increase of 9.7 per cent in carloadings for the second quarter of 1941 compared with last year was forecast for their district by the commodity committees of the New England Shippers Advisory Board meeting in New Haven, Conn., on March 26. Principal increases contemplated are 55 per cent in brass, bronze and copper; 50 per cent in cordage and 50 per cent in valves.

W. C. Kendall, chairman, Car Service division, A. A. R., told the board that "bottlenecks" in transportation, so far as the railroads are concerned are things of the past. The reason for this, he explained, is that "lessons have been taken from the 'bottlenecks' of the past, and the remedy applied before anything resembling a restriction of this kind could arise in freight transportation." Mr. Kendall indicated that while the demand for equipment is being fully met in general, slight difficulties arise when, for example, a type of special equipment is required. Said he: "Never in the recollection of the Car Service division has there been such a demand for varied types of equipment, and to meet these requirements, railroads are being called upon to convert standard types of cars to new uses, and, in some instances, to provide types which have never been required before."

Mediation Meetings Continue on Vacations Demand

National Mediation Board meetings with railway labor and management representatives on the demand of 14 non-operating brotherhoods for vacations with pay continued this week. The meetings opened March 19, and have continued daily since that time — the Mediation Board members meeting alternately with the labor and management representatives. It is understood that the railroad representatives have kept the negotiations on a regional basis.

I. C. Employees Make 34,106 Suggestions in Two Years

A total of 34,106 suggestions were made by employees of the Illinois Central during the two years ending March 6, in which its Employees' Suggestion System has been in effect. Of the total, 3,270 were adopted, for which the company paid $31,694 to the 1,583 employees who submitted them. The individual payments ranged from $5 to $1,900.

During the first year, 16,092 suggestions were submitted and 1,147 were adopted. In the second year, 18,014 were submitted and 2,123 were adopted.

Eastern Presidents Discuss Vacation Demands

A discussion of paid-vacation demands of the non-operating railroad unions constituted the chief item on the agenda of a meeting of the Eastern Railroad Presidents Conference held in New York on March 20. F. E. Williamson, chairman of the conference and president of the New York Central, appointed R. W. Brown, vice-president (operation) of the Reading, as chairman of a regional committee to act in any mediation conferences which may result from the demands of the unions.

Issues Brochures Dealing with St. Lawrence Project

The first of a series of brochures dealing with the St. Lawrence waterway project has just been issued by the Transportation Association of America. This booklet takes the position that the "expenditures for the project cannot be justified" and lists the following conclusions. It cannot be justified from the standpoint of national defense; the work can not be completed prior to 1947; the same amount of money (over a billion dollars) would purchase 125 1,800-ton destroyers or 30 10,000-ton cruisers, or 14 35,000-ton battleships; the cost would exceed normal appropriations for both the Army and Navy for a year; there would be an absorption of skilled labor which might better be utilized on facilities urgently needed; it involves a vast and debatable outlay for the taxpayer to meet at a time when he is already heavily burdened with billions being expended for non-controversial defense measures; it is unnecessary and unduly expensive for the development of electric power; it would provide only surplus and non-self-supporting transportation; the river is navigable only from May to November; only 5 per cent of the ships which could use the proposed waterway are American owned; it would be injurious to labor; and it would not benefit the American farmer.

Appeal for Prompt Return of Canadian Box Cars

Because of advices that the situation "remains unsatisfactory," W. C. Kendall, chairman of the Car Service Division, has again appealed to all railroads for the prompt return of box cars owned by Canadian roads. The cars involved are "particularly those used in the movement of newsprint, other paper products and high class lumber from Western Canadian provinces."

The present appeal is a follow-up on a similar one made last November. "The Canadian lines," Mr. Kendall said, "are under exceedingly heavy pressure due to war time traffic. The misuse of any of these cars in loading other than directly back to the home roads is a violation of the United States Customs Regulations and may have serious consequences."

Large Labor Displacement Found in Railroad Industry

Technological changes in the railroad industry caused the displacement of 394,019 man-years between 1930 and 1937, according to Monograph No. 22, "Technology in Our Economy," prepared by Lewis L. Lorwin, John M. Blair and Ruth Aull, staff members of the Temporary National Economic Committee, for that group's use. Adjusted for the percentage declines in production over this period from 1930 to 1937 which was 6.3 per cent, the displacement figure is reduced to 295,550 man-years.

The monograph goes on to point out that the 1930 output of the railroads could have been produced in 1937 with 295,550 fewer wage earners. Commenting on this, the monograph says that "the seriousness of a technological displacement of ..... nearly 300,000 adjusted man-years in steam railroads in only seven years requires no elaboration."

Tank Cars Exempt from Export Control

Tank cars in the form of one or more tanks which are permanently affixed to the car are not considered metal drums or containers within the meaning of the regulations, and therefore no license should be required for their exportation, according to a notification from the Department of State to Collectors of Customs, made public by the Department of Commerce.

However, tanks designed as separate or removable units which are placed on cars temporarily or in such a manner as to be readily removable—although held in place by the necessary wires, guys and supports —are considered to fall within the purview of the regulations, and a license should therefore be required for their exportation.

An export license should be required in the case of a tank car designed in such a manner that the tank may be left at the destination and the car returned without it.

Would Bring "Share Expense" Bureaus Under Full Regulation

Examiner W. W. McCaslin has recommended in a proposed report that the Interstate Commerce Commission find that its task of carrying out the Transportation Act of 1940's national transportation policy requires removal of the exemption of the casual, occasional, or reciprocal transportation of passengers by motor vehicle for compensation, as provided in section 203-(b)(9) of the Interstate Commerce Act, to the extent necessary to make applicable all provisions of the act to such transportation when sold, offered for sale, provided, procured, furnished or arranged for by any person who holds himself, or itself, out in those connections. The proposed report is in Ex Parte No. MC-35, the general investigation instituted by the commission upon petition of the National Bus Traffic Association.

DeGroot, I. C. C. Bureau of Service Director, Retires

Edward H. DeGroot, Jr., director of the Interstate Commerce Commission's Bureau of Service since October, 1938, will retire on March 31 after more than 23 years of service with the commission which followed upon more than 30 years of railroad service. Mr. DeGroot, who was 70 years old this month, and is thus retiring in accordance with the government's pension

(c) Bachrach

E. H. DeGroot, Jr.

rules, will open a Washington, D. C., office as a practitioner before the commission.

The retiring Bureau of Service chief was born at Galesburg, Ill., March 22, 1871, and he first entered railroad service in 1886 as a student of telegraphy and station helper on the Chicago, Burlington & Quincy at Downers Grove, Ill. He was next employed as junior clerk in the general freight office of the Burlington at Chicago, going from there to the Chicago & Eastern Illinois' general freight department. Returning to the Burlington in 1889, Mr. DeGroot spent the next 10 years in yard service and train service with that road, following which he again entered the employ of the C. & E. I. He had risen to the position of superintendent of transportation by 1917, when the Interstate Commerce Commission appointed him chief of its newly-created Bureau of Car Service.

With the coming of federal control, Mr. DeGroot transferred to the United States Railroad Administration, serving first as assistant manager of the Car Service Section. Later he was appointed assistant director, Division of Operation, remaining in that position until the termination of federal control, when he returned to the I. C. C. as assistant director of the Bureau of Service. From July, 1924, until October, 1928, Mr. DeGroot was director of the commission's Bureau of Signals and Train Control Devices. Upon discontinuance of that bureau he returned to the Bureau of Service as assistant director, remaining in that position until his aforementioned October, 1938, promotion to the directorship.

Associates of Mr. DeGroot tendered him a farewell luncheon on March 22, his seventieth birthday. Speakers included Chairman Eastman of the commission; Commissioners Johnson and Alldredge; W. C. Kendall, chairman of the Car Service Division, Association of American Railroads; and Wilbur LaRoe, representing I. C. C. practitioners. I. C. C. Secretary W. P. Bartel, a former director of the Bureau of Service, presided as toastmaster.

Representation of Employees

The National Mediation Board has made public results of recent elections in connection with representation-of-employees disputes on several railroads.

Minneapolis, St. Paul & Sault Ste. Marie yardmasters have chosen the Railroad Yardmasters of America. Carmen (including coach cleaners), their helpers and apprentices employed by the Pueblo Joint Interchange Bureau have chosen the Brotherhood of Railway Carmen of America, operating through the Railway Employees Department, American Federation of Labor; while Brotherhood of Railway Clerks has won the right to represent red caps employed by the Chicago, Rock Island & Pacific, "excluding those at Englewood Passenger Station." On the Reading, captains on barges, covered lighters and grain elevators, and the unlicensed deck and engine room personnel have chosen the Inland Boatmen's Division, National Maritime Union of America.

I. C. C. to Have New Working Schedule

Beginning March 31, the offices of the Interstate Commerce Commission will open at 9:15 a. m. and close at 4:45 p. m., Monday through Friday, and on Saturdays the hours will be from 9:15 a. m. to 1:15 p. m., according to an announcement from the office of W. P. Bartel, secretary of the commission. The changes in hours are in accordance with new schedules of staggered hours for all government workers in Washington which has been worked out to relieve traffic congestion in the downtown area.

Under the new schedule of hours information for the public and press will be released at 10 a. m. and 3:30 p. m., except on Saturdays when the hours will be 10 a. m. and 12 noon. Memoranda containing information of action by Division 4 in uncontested finance cases will be released at 12 noon each day, including Saturdays.

Bills in Congress

Representative Vinson, Democrat of Georgia, has introduced House Resolution 153, requesting the Secretary of the Navy to appoint a board of five officers to investigate and report on the need from the standpoint of national defense of establishing government owned, controlled, and operated fuel oil pipe lines between Baton Rouge, La., Port St. Joe, Fla., "and national defense activities along the South Atlantic seaboard."

Representative Mansfield, Democrat of Texas, has introduced House Joint Resolution 143, to authorize the conversion of the Panama Canal into a sea-level canal.

Senator Wheeler, Democrat of Montana, has introduced S. 1224 to extend the crediting of military service under the Railroad Retirement Acts.

Senator Shipstead, Republican of Minnesota, has introduced S. 1195 to increase the period of limitation on actions against railroad carriers for recovery of overcharges from two to three years.

Indictments Against Great Western Trustees Dismissed

Indictments of Patrick Joyce and Luther M. Walter, trustees of the Chicago Great Western, returned by a grand jury on March 1, were dismissed by the district court at St. Paul, Minn., on March 22 when the court issued a nolle prosequi to each of the 25 counts of the indictments charging violation of the Elkins Act. In this case, a United States attorney, with the assistance and advice of a legal representative of the Interstate Commerce Commission, presented to a grand jury, evidence of unlawful concession in rates given by certain railroads to shippers of potatoes from Minneapolis to various destinations. As a result of this presentation, several indictments were returned by the grand jury including that of Joyce and Walter as trustees. No other indictments were returned involving other officers of that railroad or other railroad companies, although several other railroad companies participated in the concessions.

The dismissal follows a recommendation of Joseph B. Eastman, chairman of the Interstate Commerce Commission, to the attorney-general of the United States that he take steps to secure a dismissal. Mr. Eastman pointed out that although the only way the bankrupt railroad could be indicted was by the indictment of Joyce and Walter, trustees, there is no evidence and no reason to believe that either of these men knew anything about the concessions in question, which were granted through a misapplication of complicated and involved tariffs. "Considering all of the circumstances and particularly the fact that the indictment was returned after the property had been transferred from the trustees to the new corporation," Mr. Eastman continued, "we are constrained to the conclusion that it would be unjust to subject these personally innocent men to the certainty of considerable expense and bur-

den, and to the jeopardy of possible substantial fines and even imprisonment." This recommendation was supported by Thurman Arnold, assistant attorney-general.

Colonel Dillon Named Head of Army Transport

Colonel Theodore H. Dillon, Corps of Engineers Reserve, has been appointed chief of the transportation division of the Office of the Quartermaster General to fill a vacancy that has existed for several months, according to an announcement from the War Department on March 25. As chief of the transportation division, Colonel Dillon will control and coordinate all War Department traffic moving by any commercial transportation means. He will also supervise transportation of troops and individuals by commercial means and will direct the Army Transport Service. Activities of his division also embrace the procurement of boats used by the Army.

Colonel Dillon comes to his new position from the position of director of the office of publications and public relations for the Carnegie Institute in Washington, D. C. Prior to that time he had had 10 years of experience "in all phases of commercial transportation" with the United Fruit Company.

December Bus Revenues 6.2 Per Cent Above 1939

Class I motor carriers of passengers reported December, 1940, $11,358,035, as compared with $10,690,767 in December, 1939, according to the latest compilation prepared by the Interstate Commerce Commission's Bureau of Statistics from 142 reports representing 143 bus operators.

District and carrier	Passenger revenue		Passengers carried	
	December, 1940	December, 1939	December, 1940	December, 1939
New England Region	$451,701	$490,577	1,114,365	1,003,804
Middle Atlantic Region	1,419,697	1,504,092	3,132,758	2,852,393
Central Region	1,948,099	1,937,985	2,963,015	2,679,691
Southern Region	3,049,361	2,613,979	3,646,899	3,058,242
Northwestern Region	444,060	418,199	365,215	342,849
Mid Western Region	883,420	856,619	639,257	609,451
Southwestern Region	1,567,759	1,391,862	1,715,366	1,428,989
Rocky Mountain Region	105,036	106,116	81,433	86,339
Pacific Region	1,488,902	1,371,338	1,740,395	1,406,796

Passengers carried increased 14.3 per cent, from 13,468,554 to 15,398,703.

The breakdown by regions of the bus revenue and traffic figures, which exclude data on charter or special party service, is given in the accompanying table.

Fourteen Years for Tampering with S. P. Track

A sentence of 14 years imprisonment was imposed upon Kenneth A. Lennon, Bernal C. Carter and Owen B. McHenry by the district court in Sacramento, Cal., on March 14, for tampering with the Southern Pacific main line track near Towle, Cal., on February 8. This is the first conviction under a new federal law making attempted train wrecking a federal offense. As reported in the *Railway Age* of February 22, page 359, the three men, all bowling pin setters, had attempted to extort money from the railroad and on February 8 pulled 44 spikes from ties and unscrewed bolts. Track walkers discovered the loosened rails before the westbound Pacific Limited was due and while the men had returned to Sacramento to obtain hydraulic jacks and chains with which to spread the rails.

The sentence, in three parts to be served consecutively, is as follows: Two years for attempted extortion, ten years for attempted wrecking of a train in interstate commerce, and two years for conspiracy to commit the first two crimes.

Mexican Senate Told Condition of Railroads Alarming

The lack of equipment and the condition of the tracks of the National Railways of Mexico is alarming, according to General Guadalupe Estrada in a report made to the Mexican senate on March 21. He recommended that 50 per cent of the monthly deficit of the roads be eliminated by reorganization, and that the government bear that portion of the cost of rehabilitation that may be attributed to revolutions and graft.

In 1913, according to the report, the railroads had 8,000 box cars in service, but at present, the number is 5,000, and the tonnage to be moved is double. Of 1,000 locomotives, 300 are over 40 years old, including 200 awaiting repairs and 100 that have only scrap value. The lack of motive power has brought about a congestion of shipments. The roads are in need of at least 50 locomotives, 3,000 box cars, 200 tank cars and 80 passenger train cars, which will cost 85,000,000 pesos.

Light rails must be replaced with 112-lb. rails on 3,300 kilometers of main line between Laredo, El Paso and Guadalajara at a cost of 80,000,000 pesos. Sixty-pound rails must be eliminated, and 90-lb. rails installed in secondary track.

The roads are in need of 20,500,000 pesos worth of materials. In addition several millions of important maintenance work has been deferred for several years. Accumulated obligations amount to 19,000,000 pesos.

Under the law which created the present Administration, a maximum of 48 per cent of gross revenues or 6,500,000 pesos a month in 1940 was allowed for salaries, whereas the actual payroll amounted to 8,000,000 pesos. The difference was taken from funds for materials, depreciation and equipment rentals. Accrued obligations for these items, together with materials not replaced in storehouses, amount to 40,000,000 pesos, which deficit, according to General Estrada, must be eliminated in order to avoid financial disaster.

The unbalanced generosity of the Administration, the report continues, in recognizing rights and even allowing privileges beyond financial ability, have all contributed to the present state of bankruptcy. Although the Administration is responsible for the financial and operating results, it does not feel that it should be entirely accountable for the present condition. It places its responsibility at 50 per cent of the deficit. Military campaigns of the revolution and graft during the past 25 years, according to the administration, are responsible for accrued obligations, deferred maintenance and unreplaced materials, equipment and rails, and it is up to the nation to bear that amount of the cost of rehabilitation.

Pacific Railway Club Starts Its Silver Anniversary Year

The silver anniversary of the Pacific Railway Club was inaugurated on March 13, when the club held its twenty-fourth annual meeting and banquet at San Francisco, Cal. The program of the meeting included addresses by C. E. Johnston, chairman of the Western Association of Railway Executives, and Justus F. Craemer, commissioner of the Railroad Commission of California; election of officers; and the awarding of an honorary membership to W. A. Worthington, vice-president of the Southern Pacific.

Officers elected for the ensuing year are as follows: President, Leonard V. Newton, vice-president of the Market Street Railway Company; vice-president, Fred E. Gerbel, superintendent of equipment of the Pacific Electric; B. M. Brown, assistant general superintendent of motive power of the Southern Pacific; and H. S. Hall, mechanical superintendent of the Atchison, Topeka & Santa Fe; treasurer, C. F. Post, purchasing agent of the Western Pacific; and secretary (re-elected) William S. Wollner, general baggage and ferry agent of the Northwestern Pacific.

Atlantic States Shippers to Meet April 9 and 10

The Atlantic States Shippers Advisory Board will hold its 55th annual meeting at the Lord Baltimore hotel, Baltimore, Md., on April 9 and 10. Preliminary committee meetings will be held during the first day, followed by a dinner at 6 p. m. at which John J. Cornwell, former governor of West Virginia and presently general counsel of the Baltimore & Ohio, will be the principal speaker. At 8 p. m. there will be held a general mass meeting of shippers and receivers of freight to discuss problems in connection with freight loss and damage prevention. Among the speakers scheduled are a department store executive, an officer of a manufacturing concern and Edward Dahill, chief engineer, Freight Container Bureau, Association of American Railroads.

The following day the regular meeting will be held, which will include a report of the special Less-carload Transportation and Emergency Port Transportation Committees. R. S. Henry, assistant to president, A. A. R., will address a luncheon at 12:30 p. m. sponsored by the Traffic Club of Baltimore and the Baltimore As-

sociation of Commerce. Inasmuch as April has been designated as "Perfect Shipping Month" by the Advisory boards, there will be placed in the foyer of the hotel an exhibit of box strapping, cartons, stenciling machines, marking tools, and other equipment necessary for the preparation of freight.

Freight Car Loading

Loadings of revenue freight for the week ended March 22 totaled 768,508 cars, the Association of American Railroads announced on March 27. This was an increase of 9,815 cars, or 1.3 per cent, above the preceding week, an increase of 148,133 cars, or 23.9 per cent, above the corresponding week last year, and an increase of 166,560 cars or 27.7 per cent, above the comparable 1939 week.

As reported in last week's issue, the loadings for the previous week ended March 15, totaled 758,693 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For Week Ended Saturday, March 15

Districts	1941	1940	1939
Eastern	171,892	136,954	131,935
Allegheny	172,014	126,534	117,778
Pocahontas	54,504	45,202	38,961
Southern	117,612	97,264	97,018
Northwestern ..	83,519	72,067	65,856
Central Western	106,873	95,182	94,595
Southwestern ..	52,279	46,185	45,023
Total Western Districts	242,671	213,434	205,474
Total All Roads	758,693	619,388	591,166
Commodities			
Grain and grain products	32,562	31,577	29,985
Live stock	10,189	10,639	11,220
Coal	162,216	126,575	112,954
Coke	14,121	9,044	7,314
Forest products.	39,444	30,877	26,142
Ore	13,265	10,485	8,932
Merchandise l.c.l.	159,286	147,527	152,321
Miscellaneous .	327,610	252,664	242,298
March 15	758,693	619,388	591,166
March 8	741,922	620,596	588,426
March 1	756,670	634,636	594,424
February 22 ..	678,493	595,383	556,742
February 15 ..	721,176	608,237	576,645
Cumulative Total, 11 Weeks ...	7,821,568	6,921,234	6,345,612

In Canada.—Carloadings for the week ended March 15 totaled 58,131, compared with 58,806 in the previous week and 46,996 in the corresponding week in 1940, according to the summary of the Dominion Bureau of Statistics.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
March 15, 1941	58,131	30,474
March 8, 1941	58,806	30,754
March 1, 1941	56,087	30,043
March 16, 1940	46,996	24,433
Cumulative Totals for Canada:		
March 15, 1941	586,733	312,408
March 16, 1940	519,924	265,112
March 18, 1939	441,202	232,729

Accounting Division Meeting at Denver, June 24-26

June 24, 25 and 26 have been selected as the dates for the next annual meeting of the Accounting Division, Association of American Railroads, which will be held at the Cosmopolitan Hotel, Denver, Colo. Preceding the opening of the three-day general meeting will be the usual "open house" meetings of the principal committees on Monday, June 23.

The dates for the meeting were announced by the Division's chairman—T. H. Seay, comptroller of the Southern—who also stated that the agenda, prepared by Secretary E. R. Ford, will be distributed to members in advance of the convention in conformity with the usual custom. This agenda, Mr. Seay promised, will reveal that "the standing committees have given considerable study during the past year to matters of vital interest to railway accounting officers generally." Prior to submitting their reports for the agenda, most of the committees plan to hold their final meetings during April; and Mr. Seay urged that any suggestions from accounting officers be submitted to the secretary in time for consideration at those April committee meetings.

The committee on arrangements for the convention is headed by T. A. Thompson, general auditor of the Denver & Rio Grande Western, with headquarters at Denver.

Santa Fe's Land-Grant Release Approved

The claim of the Atchison, Topeka & Santa Fe to approximately 1,400,000 acres of public land in Arizona and New Mexico has been "cancelled out," with the approval by Secretary of Interior Ickes of a release submitted by that railroad.

The release of the Santa Fe constitutes the second instance in which land is being relinquished to the government under provisions of the Transportation Act of 1940; the first relinquishment, made by the Southern Pacific, involved about 2,000,000 acres of public land in Southern California.

Approval of the release by Secretary Ickes qualifies the Santa Fe for the benefits of the 1940 Act's land-grand-rate-repeal provisions.

One of the Santa Fe's predecessors, the Atlantic & Pacific Railroad Company, was awarded a grant of approximately 13,423,000 acres of the public domain by Congress in 1866, according to General Land Office records. Of this original grant, the railroad received title to approximately 11,917,000 acres from the United States. Claims for the unpatented area (the aforementioned 1,400,000 acres) now have been relinquished.

The Secretary of the Interior has also announced his approval of a release submitted by the Duluth, South Shore & Atlantic, covering land-grant territory of its predecessor, the Marquette, Houghton & Ontenagon.

Club Meetings

The New England Railroad Club will hold its next meeting on April 8 at the Hotel Touraine, Boston, Mass., at 6:30 p. m. Dr. A. V. deForest, professor, Massachusetts Institute of Technology, will present a paper on "Magnaflux on the Railroad" to be illustrated by lantern slides.

The Car Foremen's Association of Chicago will hold its next meeting at the La-Salle hotel, Chicago, on April 14 at 8 p. m. The United States Steel Corporation will show a moving picture entitled "Steel—Man's Servant."

The Northwest Car Men's Association will hold its next meeting at the Midway

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Mardi Gras Queen Christens "Southerner"

The Southern's seven-car, stainless steel, all-coach "Southerner," to go into service March 31, was christened in New Orleans, La., on March 17, by Miss Delphine Clark, queen of the 1941 Mardi Gras.

On an adjoining track characters dressed in old Southern costumes from "Gone With the Wind" showed off to advantage an exact reproduction of the "Best Friend." This famous old locomotive was placed in service between Charleston, S. C., and Branchville in December, 1830, by the South Carolina Canal & Railroad Co., since absorbed by the Southern.

The train started its 1,385-mi. exhibition trip to New York on March 19. At Atlanta, Ga., a "railroad town" from its beginning as a junction point, some 300 business and professional men were the guests of the road, the Electro-Motive Corporation and the Pullman-Standard Car Manufacturing Company on March 23.

Club, St. Paul, Minn., on April 7 at 8 p. m. The Waugh Equipment Company will show sound pictures on draft gear.

The Toronto Railway Club will hold its next meeting at the Royal York hotel, Toronto, Ont., on April 28, at 8 p. m. "Transportation and the Nation" will be presented by Kinsey N. Merritt, general sales manager, Railway Express Agency, New York.

The Transportation Club of Rochester, N. Y., will hold its "perfect shipping month" meeting in the Chamber of Commerce building on March 31 at 8 p. m. The speakers will be K. N. Merritt, sales manager, Railway Express Agency, New York, and J. M. Heath, freight claim agent, Lehigh Valley, Philadelphia, Pa.

The Eastern Car Foremen's Association will hold its next meeting in the Engineering Societies building, 29 West 39th street, New York, on April 11, at 8 p.m. A paper entitled "The Handling and Transportation of Explosives and other Dangerous Articles" will be presented by C. K. Hoch, assistant superintendent of safety, Reading Company, Reading, Pa.

The Car Department Association of St. Louis will hold its next meeting at the Hotel De Soto, St. Louis, Mo., on April 15 at 8 p. m. Roy V. Wright, managing editor of *Railway Age* and editor of Railway Mechanical Engineer, will be the guest speaker, taking as his subject "The Training of Personnel." Charles Behen, car repairer, Socony-Vacuum Oil Co., Lubrite division, East St. Louis, Ill., will present a short paper entitled "The Past and Present Day Tank Car." Dinner will be served preceding the meeting at 6:30 p.m. The Association will co-operate with the Forum Committee of the East St. Louis Chamber of Commerce and the East St. Louis Lions' Club in a forum luncheon meeting to be held at the Broadview hotel in East St. Louis at 12 noon on April 15, at which time Mr. Wright will speak on "Too Much Transportation."

Maritime Commission May Take Over Intercoastal Ships

The United States Maritime Commission is considering plans to buy or requisition part of the intercoastal and coastwise fleets, it has been learned in Washington, D. C. Such a step should divert a considerable amount of tonnage to the railroads.

Officials of the Maritime Commission have indicated that the diversion of the intercoastal and coastwise vessels will take place if the ships now being built or ordered in this country under British and American construction programs cannot be launched soon enough to keep the "bridge of ships" between the United States and Britain intact.

Although the railroads have expressed the belief that they could easily carry all of the freight now being shipped in the intercoastal ships, commission experts feel that some ships would have to be kept in service to carry bulky cargoes of lumber, petroleum and stone. It is felt that the railroads would stand to gain in loadings of vegetables, paper, sulphur, chemicals, iron and steel and grain.

It is further understood that before the coastal ships are used to help Britain, the commission will expect the British to reorganize their shipping services so as to economize on tonnage. This would mean that Britain would have to import from the nearest possible countries instead of relying upon Far Eastern countries and Latin America for products that can be purchased in the United States.

Army to Buy Railroad to Train Operating Battalion

Army plans to buy for $100,000 the Red River & Gulf's 58.7-mile line in Louisiana for the purpose of training a railway operating battalion were revealed last week when a subcommittee of the House committee on appropriations published the record of its recent hearings on H. R. 4124, the Fifth Supplemental National Defense Appropriation Bill for 1941. The plan also contemplates that $500,000 will be spent on rehabilitation of the road.

Testimony in connection with the railroad purchase was presented by Major L. T. Ross, who explained the army's plan to extend the line so that it will eventually serve Camps Claiborne, Beauregard, Livingston and Polk; the present length "is not quite adequate for the battalion," which consists of 800 men and 18 officers and is designed to operate "from 75 to 100 miles of railroad under dense traffic conditions." Reminded that the army had no railroad for training during the World War, Major Ross replied that railway regiments were then formed "from the commercial railroads," adding that "at that time the average age of railroad employees was such that we could get men of an age suitable for military work." In 1938, he went on, "the average age was about 46 years, including the young laborers on maintenance-of-way work."

Major Ross thought that $100,000 or about $1,700 a mile was a reasonable price for the road, which is now in receivership; the Rock Island, he said, "offered us a poorer railroad for about $10,000 a mile." The majority of officers in the railroad battalion will be reserve officers who are railroad men. The major item in the $500,000 to be spent for rehabilitation will be heavier rail, although it is planned to replace some ties and strengthen bridges.

Prescribes Truck Rates on Granite Higher Than Rail

Following the recommendation of Examiner Burton Fuller's proposed report, the Interstate Commerce Commission, in a report by Commissioner Miller, has prescribed truck rates differentially higher than rail rates on granite from origins in Vermont to destinations in New England and Trunk Line territories. The decision is in the commission's No. 28286 general investigation into the lawfulness of rates, charges, rules, regulations, and practices on granite and marble moving by rail, truck and water between the aforementioned origins and destinations.

The reports finding is that the truck rates on granite shall be five cents more than the railroad l. c. l. rates which in turn are fixed at the column 45 level as a minimum. Rates on other traffic covered "are not shown to be unreasonable or otherwise unlawful." In the latter connection the examiner had recommended fixing of minimum rates on polished and carved granite in carloads at the column 27.5 level; but since that time the interested carriers have agreed on column 30 as a basis for the carload rates. And they filed no exceptions to the examiner's other recommendations. The majority's acceptance of this agreement was criticized by Commissioner Mahaffie in a brief dissent; he was unable to concede "that the substantial agreement of the parties to a proceeding is a sufficient basis for the prescription by us of minimum rates."

Transport "Not Even Breathing Hard," Says Army Man

Remarking that "the transportation industry isn't even breathing hard yet," Captain E. C. R. Lasher, Quartermaster Corps, U. S. Army, told members of the Great Lakes Regional Advisory Board at Buffalo, N. Y., on March 26 that "whatever the causes and whosoever the blame for the so-called 'failure' of the railroads in 1917, it can well be said that things are different now." Expanding this point he compared the two periods specifically: "On September 20, 1917, this country was 167 days into a war emergency. Today, this country is 167 days into a 'limited emergency.' Insofar as traffic is concerned, we have these two emergency situations whose characteristics are very similar—tremendous industrial expansion, increased employment, huge governmental expenditures, large and rapid increase in the Army and Navy, and an ever increasing amount of exports through Atlantic ports.

"However, 167 days after the declaration of war in 1917 the entire transportation system of the country was jouncing to a halt. Today, practically the same effort has been accomplished, as had been accomplished by September 20, 1917, but what a difference in the condition of our transportation system. Today, not even a tendency of congestion appears at any point. No embargoes because of the emergency have been necessary. Traffic is flowing freely through our Atlantic ports. The present cantonment construction program is well into its final quarter with nearly all materials delivered. Special trains of troops are moving freely on exact schedules. Plant expansion and new plant construction is in full swing."

Big Four to Inaugurate Cincinnati-Chicago Streamliner

The "James Whitcomb Riley," a new streamlined seven-car train, will be placed in operation by the Cleveland, Cincinnati, Chicago & St. Louis between Cincinnati, Ohio and Chicago on April 28. The train, the first streamliner ever to be operated between these cities, will make a round trip daily, on a schedule of 5½ hr. for the 303 miles. It will leave Cincinnati at 8:00 a. m. eastern time and will arrive in Chicago at 12:30 p. m. central time. Returning, it will leave Chicago at 4:30 p. m. and will arrive in Cincinnati at 11 p. m. It will stop at Indianapolis, Ind., Lafayette and Kankakee, Ill.

The Riley will be made up of four Budd stainless steel coaches, with reclining, rotating chairs, extra large wash rooms and a special lighting system; a baggage-mail car; a diner, seating 44; and an observa-

tion-lounge car. Along the exterior of the cars will run a maroon stripe the height of the windows. This will be superimposed on a gray background with silver stripes. The train will be hauled by a Pacific type locomotive, streamlined and painted gray with silver stripes.

The dining car will be in three sections, with banquette seats in the center, upholstered in blue leather. At either end will be a section seating eight persons, with seats in rust upholstery. Floor coverings and drapes will be in varied tones of tan and rust.

The observation lounge car will be decorated in tan and walnut, with upholstery of rust and blue. Plastic windows will divide the car into three sections. It will have a semi-circular bar in the center.

The coaches will be decorated in blue, silver and gray, with seats upholstered in rust or maroon. The extra large wash rooms will be equipped with toilet facilities of colored tile and fluorescent lighting.

Before going into service, the Riley will be exhibited at Cincinnati, Indianapolis, Chicago and the stations at which it will make regular stops.

Mechanics, Loaders and Drivers' Helpers Under Motor Safety Rules

Mechanics, loaders and drivers' helpers are the non-driver employees of truck and bus operators who are subject to the Interstate Commerce Commission's hours-of-service regulations, according to the commission's report in the reopened Ex Parte No. MC-2 and Ex Parte No. MC-3 proceedings, dealing respectively with the hours of service of employees of common and contract motor carriers, and regulations to promote safety of operation of private trucks operating in interstate commerce. In bringing in mechanics and drivers' helpers on buses (including "conductorettes") the commission goes beyond the recommended findings in the proposed report by Examiner R. W. Snow, who would have brought in only truck loaders and helpers.

The commission stated that no order is necessary at this time; and it announced that a further hearing will be held to determine what regulations, if any, should be prescribed for mechanics, loaders and helpers. The proceedings involved were reopened after the United States Supreme Court had upheld the commission in its contention that the Motor Carrier Act's hours-of-service provisions applied only to employees whose activities affected safety of operation, leaving other employees to come under the Fair Labor Standards Act. The reopening was for the purpose of determining whether or not any motor carrier employees other than drivers should be covered.

After considering the pertinent provisions of the act, the commission interpreted the phrase "safety of operation" as meaning safety of operation of motor vehicles. From that it followed through to the above-mentioned findings. Separate concurring-in-part expressions came from Commissioner Lee, who was unable to find justification for the majority finding that "conductorettes" on buses and guards on armored trucks should be included; Commissioner Splawn who would have limited the coverage to employees actually on the vehicle; and Commissioner Patterson who would have included only drivers. Commissioner Aitchison did not participate.

Commenting on the I. C. C.'s finding, General P. B. Fleming, Administrator of the Wage and Hour division, said on March 24 that the courts "may well agree with the view previously expressed by the Wage and Hour division that the exemption of these employees from the 40 hour work week of the Wage and Hour Law does not become operative until the I. C. C. begins actual regulation of their hours of service."

Gulf Water Carriers File Increased Rates

Coastwise steamship lines operating between North Atlantic and Gulf ports have filed new tariffs with the Interstate Commerce Commission providing an increase of 25 per cent in rates. The new tariffs, which will become effective April 7, unless suspended, constitute the attempt of the carriers to rescue their financial operations from the collapse which threatens them due to loss of business and increased terminal costs. At the same time the lines filed with the commission's board of suspension an explanation of the proposed increases.

The new tariffs have been filed by the Atlantic-Gulf Coastwise Steamship Freight Bureau, and the explanation was made by William Simmons, chairman of the bureau, in a letter addressed to William B. Hammer, chairman of the suspension board. In his letter, Chairman Simmons estimated that the increases proposed would produce only 12 per cent more revenue because of the fact that they could not be applied to all traffic.

The letter of explanation points out that in the four years, 1936-1939, the average yearly cost of operation of the Gulf lines exceeded the average yearly revenue by $4,504,975. It also showed that in 1940 there were 68 different steamship services between north Atlantic and Gulf ports, many of which were maintained throughout the year, but that as of March 6 of this year, 54 of those services had been withdrawn, leaving only 14.

The situation in the coastwise service had become so serious early this year that the Maritime Commission and the I. C. C. called a conference of operators to discuss what action might be taken to improve the revenues of the lines left in the business. The filing of the new tariffs is one of the outgrowths of this conference.

Chairman Simmons went on to point out in his letter that the increase could not be 25 per cent on many phases of the business because of competition and the commission's requirement that its southwestern adjustment be held as maximum for many of the rates in which the Gulf lines are interested.

He also told the commission that there could be no 25 per cent increase in port to port commodity rates because rates so increased would exceed the class or column rates required to be held as maxima. Moreover, he said, where rates are now made by combinations, including a port to port factor, the full increase in the port to port factor could not be obtained in instances in which the class or column rates had to be observed as maxima.

Another limiting factor, he observed, was created by the transit privileges offered by rail lines without the concurrence of the steamship lines. In such instances, he continued, the steamship lines would be required to accept the present port to port rate for a long period to come. For example, he declared, the rate on flour from Gulf ports to north Atlantic ports was being increased, but so long as this flour was delivered to the steamship lines at Gulf ports on billing showing an origin prior to the effective date of the increased steamship rate, the old rate would have to be applied.

Cuts Mid-Continent Rates on Gasoline

(Continued from page 576)

"present" rates, i.e., those in effect at the time of the first hearing in October, 1939, range from 28 cents to Kansas City to 63 cents to Marquette. Group 3 is the basic group in the origin territory; it embraces "practically all points in Oklahoma and, on traffic to St. Louis, Mo., and points East of the Mississippi river to which the short routes from Tulsa, Okla., make through crossings Davenport, Iowa, and South, it embraces South Central Kansas, including such points as Arkansas City and Hutchinson."

The newly-prescribed pipe-line rates from origins on the Great Lake Pipe Line range from the equivalent of 10 cents per 100 lb. to Kansas City, Kans., to 24 cents to Chicago; from origins on the Phillips line the range is from the equivalent of 12 cents per 100 lb. to Kansas City, Kans., to 19 cents to East St. Louis, Ill. The present minimum tender requirements of these pipe lines are 25,000 barrels or the equivalent of approximately 125 tank-car loads. The commission found this reasonable "when normal transportation service is demanded"; but, as indicated above, ordered the pipe lines to publish minimum-tender requirements of 5,000 barrels "for transportation subject to delay until defendants have accumulated at the receiving point 25,000 barrels of the same specifications from the same or other shippers." Such delayed shipments are to be stored at origin points without additional charge, but the storage time now allowed at destination without additional charge shall be reduced accordingly.

On the multiple-car railroad rate matter, the majority report had much to say; but in the end it appraised the evidence as "not sufficient for us to make affirmative findings as to whether or not such rates should now be published and maintained." Leading up to this finding, the majority had rejected the contention that "multiple-car rates are in themselves depressed rates, which we may not lawfully prescribe." If that contention be sound, the report said, "then carload rates lower than less-than-carload rates are depressed rates; and rates lower, with a high carload minimum weight, than other rates with a low carload minimum weight, are depressed rates."

Then came a reference to evidence which was interpreted as showing that the freight-

train service received by petroleum and petroleum products "is a service equal to that received by perishable and livestock traffic." In other words the commission said that "preferred service" is now accorded to the traffic involved in the case; and it proceeded to consider the cost of handling 25-car minimum-tender shipments "in preferred service." In that connection the analysis of the record led to the conclusion that "cars moving in blocks of 25 carloads intact from one consignor at one point of origin to one consignee at one point of destination in preferred service would require less handling in terminals than cars moving individually, but that such movements would necessitate additional freight train miles to an extent that might offset the savings in terminal expense, and result in an increase in aggregate operating expenses."

Turning to its consideration of "whether a restricted service might be given under which operating economies could be effected," the commission found the idea a good one. Moreover it was the position of complainants that "a minimum tender rule of 25 carloads is practical and workable; that they have no concern in whether the carriers transport and deliver the 25 carloads as a unit or in smaller numbers; and that they do not require preferred service but can accommodate their business to delayed movements, as long as their service is comparable with that which their pipe-line competitors receive." Evidence bearing on the cost of handling 25-car minimum-tender shipments in restricted service "clearly" indicated that "there is an important difference between the transportation costs incident to the movement of traffic in preferred service and those incident to the movement of the same traffic when not in preferred service."

Continuing, the commission likens the handling of freight in restricted service to the handling of company material; in other words such freight might be "used as a reservoir to fill out through manifest trains"; it might be "moved at operating convenience," thus making it possible "to bring about economies in the present cost of handling the present volume of traffic." It is "imperative," the commission added, that "when traffic is offered for movement under rates made for restricted service the shipper be prohibited from demanding preferred service . . . The sole basis of consideration should be that the movement must be made in a manner that best fits in with the operating situation as it is at the time the shipment is tendered for movement, and as that situation may be changed from time to time while the shipment is in transit."

Then after making its aforementioned finding that the evidence did not warrant prescription of multiple-car rates, the commission had this to say: "The situation, however, which here confronts the rail carriers and complainants . . . is such that the rail carriers should give further study to establishing such service and rates. Many producers of gasoline in the mid-continent field by shipping in large quantities are now getting the benefits of low-cost transportation by pipe line. The rail carriers may be able to utilize the advantages inherent in transportation by them of like quantities, because of lower costs, or use of restricted service, or both, at rates lower than those applied to single carloads. The establishment of such a service will substantially benefit shippers like complainants who are dependent upon rail carriers for transportation. The possibilities have not been fully explored. A more intensive study is needed. In such study particular attention should be given to the extent of competitive transportation and its effect upon the service and revenue of the rail carriers; to the question of the relation that should exist between multiple-car rates and single-car rates; and to the factors to be considered in determining such relation." Further in the report the commission had observed that "defendants have met truck competition on the short hauls and at the same time have not to the same extent met pipe line competition for the long hauls."

Aside from its aforementioned reference to the "intriguing" nature of the restricted-service suggestion, Chairman Eastman's concurring opinion seemingly undertook to soften the blow of Mr. Mahaffie's criticism of the majority for going as far as it did in reducing the carload rates. The chairman pointed out that the railroads "were not helpful in supplying evidence as to cost of service," and it seemed to him that the record justified the majority findings. He conceded, however, that "the matter is not wholly free from doubt," adding that the railroads may want to amplify the record as to "a need for some modification of the findings."

As indicated above, Commissioner Porter adhered to the views he expressed in dissenting to the decision authorizing trainload rates in what he called "the ill-fated Molasses Case." He recalled that he had there asked ("it required no gift of prophecy on my part") "if trainload rates are good for blackstrap molasses, why are they not good for the shipment of oil from the mid-continent field to central territory . . .?" Thus Mr. Porter still believes that "once we are embarked on the sea of these discriminatory rates there is no telling to what harbor they may lead." He therefore objected to the majority "encouraging the carriers" to extend the plan to oil.

Commissioner Splawn, in addition to suggesting that the new carload rates should have been prescribed on a lower basis, defended the general idea of using trainload rates. He said: "The use of the trainload rate, or its modern equivalent, the multiple-car rate, is a phase of the growing use of quantity rates, as a means of utilizing for the benefit of both shippers and carriers, the rail carriers' inherent advantages in bulk transportation . . . In truck transportation, quantity rates, other than truck and less truckloads, are well established. The same principle in a different form has been extensively recognized in tariffs proposed by railways and approved by the commission in cases of varying rates for varying carload minima."

In contending that rate reductions to the extent required by the majority were not justified, Mr. Mahaffie suggested that whether the railroads attempt to meet the competition of the pipe lines, water carriers and trucks "is their problem." Also, he thought it might be noted "that these rates prescribed as maxima are actually lower than the minimum rates prescribed by this commission as recently as September 25, 1939, for application from Seattle and Portland to Spokane . . ." His reference was to the I. & S. No. 4614 proceeding wherein the Supreme Court recently upheld the commission's action in prescribing minimum rates which the railroads contended were calculated to hold an umbrella over their higher-cost competitors. The situation, Mr. Mahaffie added, "illustrates the difficulties a regulatory commission is likely to encounter when it abandons transportation conditions as its guide and attempts to adjust rates on the basis of the competition of producers and marketers and rival agencies of transportation."

R. E. A. Is Denied Air Express Certificate

While denying the Railway Express Agency's application for a certificate of convenience and necessity as an air carrier of express, the Civil Aeronautics Board has, however, granted it temporary exemption from the Civil Aeronautics Act until such a time as the Board has completed its pending investigation of the contracts between R. E. A. and the various air lines. The board's decision stated that the R. E. A. is and was during the "grandfather" period an "air carrier" within the meaning of the Civil Aeronautics Act, but that provision of the Act authorizing the board to grant "grandfather" certificates is not applicable to the type of operation carried on by R. E. A.

In reaching its decision, the board defined an air carrier as one who undertakes, whether directly or indirectly, or by lease or any other arrangement, to engage in the carriage by aircraft of persons or property as a common carrier for compensation or hire, or the carriage of mail by aircraft in commerce. This definition, in the opinion of the board, embraces two classes of air carriers—those engaged in direct air carrier operations and those engaged in indirect operations, such as R. E. A.

After pointing out that section 401 (e) (1) of the Act provides that upon the making of a requisite showing an applicant shall be given a certificate to engage in air transportation "between the terminal and intermediate points between which it . . . so continuously operated" during the "grandfather" period, and "with respect to all classes of traffic for which authorization is sought except mail," the board argues that "if operations like the applicant's fall within the section, the board in the light of the plain meaning of this language would have no alternative but to authorize applicant to engage in the transportation of passengers." "It would be absurd," concludes the board's opinion, "to attribute such an intention to Congress and such a result is entirely inconsistent with the general purposes of section 401 (e) as we understand them."

Proceeding from this discussion, the board decided that a certificate cannot be issued to R. E. A. under section 401 (e) of the act and that continued operation by R. E. A. would be in violation of the act

from the date of the decision. "As we have pointed out, however," continues the decision, "section 1(2) empowers us to exempt air carriers such as applicant from any provision of the act. There is now pending before the board an investigation into the contracts between applicant and the air lines, and it is apparent that the precise relationship of applicant and its contracts to the provisions of the act cannot be finally determined until that proceeding is concluded. Accordingly, it is in the public interest to temporarily exempt applicant from the provisions of section 401 (a) of the act."

The majority opinion was concurred in by Harllee Branch, chairman, Edward P. Warner, vice chairman, and Oswald Ryan, member of the board. G. Grant Mason, another member, wrote a short dissenting opinion, stating that he would subsequently file an opinion expanding upon his views that R. E. A. is not, under the law, an air carrier. George P. Baker, another member of the board, did not participate in the decision.

C. & E. I. Awards Watch to Hero

The heroism of William Harrison in rescuing another boy from drowning was rewarded on March 24 when C. T. O'Neal, president of the Chicago & Eastern Illinois, presented Harrison with an appropriately engraved watch. The incident took place last December when Harrison, eighteen years old, plunged into the icy waters of the railroad's reservoir at Villa Grove, Ill., without removing his overcoat and hip boots, to rescue Royce Maxfield, nine years old. Facts about the rescue recently came to the attention of President O'Neal and he invited Harrison to Chicago to receive recognition for his act of bravery.

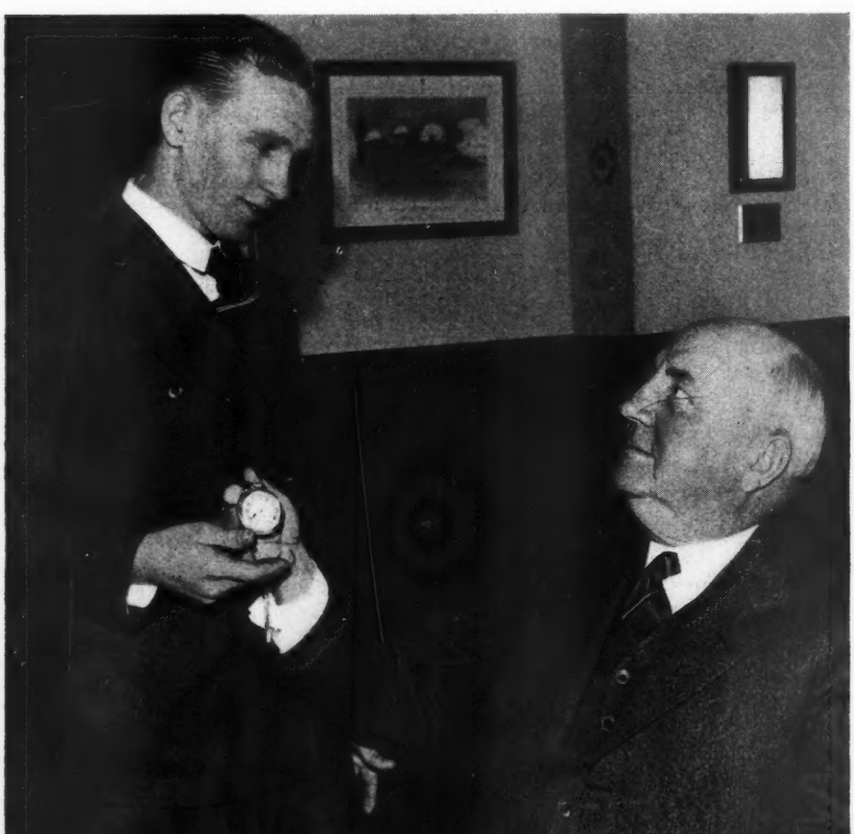
Proposed Reports on Fourth Section Relief Applications

Examiner Andrew C. Wilkins has recommended in a proposed report that the Interstate Commerce Commission deny the application of railroads for relief from the fourth section's long-and-short-haul clause in connection with a proposal to reduce rates on iron and steel articles in carloads from points in Official and Southern territories, and from certain points in Western territory to Gulf of Mexico ports. In another case, Examiner W. M. Cheseldine has recommended that relief be granted in order to permit the establishment of joint rail-water class rates from points in Official Classification territory, including Illinois Freight Association territory, and Western Trunk Line territory to the South Atlantic ports of Charleston, S. C., Savannah, Ga., and Jacksonville, Fla., and in the reverse direction.

In the iron and steel case, docketed as Fourth Section Application No. 18250, the relief is being sought primarily to permit the establishment of a proposed reduced rate from the Birmingham, Ala., district to New Orleans and Mobile, in order "to enable the railroads to procure a share of the tonnage of iron and steel articles now moving by rail from the producing plants to Birmingport, Ala., and thence by water in privately-owned barges." The purpose of the reductions proposed from other points "is to maintain, as nearly as possible, the existing rate relations between those producing points and Birmingham."

The examiner's adverse recommendation is based upon his interpretation of the evidence as showing that the grant of the relief "would not tend to foster sound economic conditions among the several carriers," and thus it would not be in accord with the Transportation Act of 1940's declaration of policy. More specifically he found that "there is no showing on this record that the rail carriers would realize any profit if they obtain some of this traffic under the basis of reduced rates here proposed. There would be a relatively small increase in gross revenue in connection with the traffic from Birmingham but a loss in gross revenue on all traffic which would be affected."

In the situation covered by Examiner Cheseldine's proposed report (Fourth Section Application No. 18268) there are at present no joint rail-water class rates; the traffic has been moving on a system of class and commodity rates maintained by the water carriers and published under the so-called nonconcurrence plan. In other words, the rail carriers operating between the interior points and North Atlantic ports are not parties to the tariffs, their charges being absorbed by the water lines out of the latter's established rates. Also, the water lines maintain proportionals between North and South Atlantic ports, applicable on traffic originating at, or destined to, points in Central and Illinois territories. This method of publication, the examiner observes, "has been the subject of criticism by the commission for some years;" but it had no control when the water lines were not under its jurisdiction. The Southern rail carriers oppose the relief sought on the general ground that the proposed rates "reflect too great a spread between the all-rail and the rail-water rates to enable the all-rail lines fairly to compete for this traffic." As the examiner sees it, however, the proposed rates "will greatly lessen . . . the disadvantages these rail lines are now laboring under."



William Harrison Receives Watch from C. T. O'Neal, President of the Chicago & Eastern Illinois for Rescuing Royce Maxfield from Drowning

1940's Capital Expenditures Totaled $429,147,000

Capital expenditures for equipment and other improvements to railway property made by Class I railroads in 1940 totaled $429,147,000, the greatest amount spent in any year since 1937, according to the Association of American Railroads. This was an increase of $167,118,000 above such expenditures in 1939. In 1937, gross capital expenditures amounted to $509,793,000.

Of total capital expenditures made in 1940, $271,906,000 were for locomotives, freight-train cars, passenger-train cars and other equipment and $157,241,000 for roadway and structures. Capital expenditures in 1940 for equipment were $138,518,000

(*News continued on page 590*)

Canadian Pacific Railway Company

SIXTIETH ANNUAL REPORT

OF THE

DIRECTORS OF CANADIAN PACIFIC RAILWAY COMPANY

YEAR ENDED DECEMBER 31, 1940

To the Shareholders:

The accounts of the Company for the year ended December 31, 1940, show the following results:—

Income Account

Gross Earnings		$170,964,897.01
Working Expenses (including taxes)		135,325,458.93
Net Earnings		$35,639,438.08
Other Income		10,692,163.30
		$46,331,601.38
Fixed Charges	$25,380,715.44	
Interest on bonds of Minneapolis, St. Paul & Sault Ste. Marie Railway Company, guaranteed as to interest by your Company	805,830.00	
		26,186,545.44
Net Income		$20,145,055.94
Dividends on Preference Stock:		
2% paid October 1, 1940 £564,069.10.10	$2,521,390.85	
2% payable February 1, 1941 564,069.10.10	2,521,390.85	
		5,042,781.70
Balance transferred to Profit and Loss Account		$15,102,274.24

Profit and Loss Account

Profit and Loss Balance December 31, 1939		$141,353,502.86
Balance of Income Account for the year ended December 31, 1940		15,102,274.24
		$156,455,777.10
DEDUCT:		
Amount credited investment reserve owing to impairment in investment in Minneapolis, St. Paul & Sault Ste. Marie Railway Company	$10,000,000.00	
Loss on lines abandoned and on property retired and not replaced	1,539,475.25	
Miscellaneous—Net Debit	871,006.39	
		12,410,481.64
Profit and Loss Balance December 31, 1940, as per Balance Sheet		$144,045,295.46

Net Income for the year amounted to $20,145,055, being $10,362,907 greater than in 1939.

Railway Earnings and Expenses

The comparative results of railway operations were as follows:

	1940	1939	Increase or *Decrease*
Gross Earnings	$170,964,897	$151,280,699	$19,684,198
Working Expenses (including taxes)	135,325,459	122,756,880	12,568,579
Net Earnings	$35,639,438	$28,523,819	$7,115,619
Expense ratios:			
Including taxes	79.15%	81.15%	*2.00*
Excluding taxes	74.61%	78.26%	*3.65*

Gross earnings increased by $19,684,198, or 13.0%. Each month contributed to this increase with the exception of September during which there was a substantial reduction owing to the absence of the usual heavy movement of grain.

Freight earnings increased by $15,493,585, or 12.9%, and were greater than those of any years since 1929.

Earnings from grain and grain products showed a decrease of $4,171,034, or 13.1%. The total handling of all grains during the year amounted to 166 million bushels, as compared with 203 million bushels in 1939, an average of 155 million bushels for the years 1930-1939 (during which grain production was generally sub-normal) and an average of 254 million bushels for the years 1925-1929. Delayed movement of the 1939 crop resulted in increases in grain earnings during the early months of the year, but these were more than offset by reductions in the autumn months.

The Prairie Provinces wheat crop of 525 million bushels in 1940 was second only to the 1928 crop of 545 million bushels, the largest in the history of these Provinces. However, with much of the normal export market closed as a result of the war, the terminal elevators were overtaxed, and it became necessary to hold a large part of the wheat on farms or in country elevators. At the end of the year it was estimated that only 30 per cent. of the crop had been moved, as compared with about 60 per cent. in 1939 and 70 per cent. in 1938.

Apart from grain, freight earnings increased 22.2%, gains being shown in every important class of commodity except fruits and vegetables and anthracite coal. There were particularly heavy movements of manufactured goods, construction materials, petroleum products, bituminous coal, coke, and miscellaneous freight. Owing to lack of ocean tonnage on the Pacific large consignments of lumber and timber moved from British Columbia to eastern ports for shipment overseas, and special rates were provided for this movement. The inability of producers of pulp and paper in enemy-controlled parts of Europe to reach American markets was an important factor leading to increased movement of these commodities from Canada. There was a substantial gain in shipments of dressed meats and packing house products to the United Kingdom. Ores and concentrates and refinery and smelter products moved in increased volume. Owing to wartime conditions, there was a notable change in the geographical distribution of originating tonnage. Losses in the Prairie Provinces were more than counterbalanced by impressive increases in the East and in British Columbia.

Passenger earnings increased by $2,784,687, or 17.8%, as a result both of military movements and of increased business activity. Among the adverse features were the virtual disappearance of ordinary passenger traffic in connection with the Atlantic steamships and a considerable reduction in travel through Pacific Coast ports. Unfortunately, during the summer widespread publicity was given to false reports of difficulties encountered by United States citizens in entering and leaving Canada. These tended to interfere with tourist traffic in the early part of the season, but later their effect was largely overcome by intensive publicity in which your Company participated.

Other earnings increased by $1,405,925, or 9.2%, notwithstanding a decrease of $2,236,232 in steamship traffic commissions, which were discontinued on February 1, as explained at the last annual meeting. Under this heading the largest increase was in express earnings, but sleeping car, dining car, news service and other passenger train revenues also showed considerable gains. There was also a substantial improvement in switching and storage revenues and other miscellaneous items.

Working expenses increased by $12,568,579, or 10.2%. Excluding the taxes, the increase was $9,163,205, or 46.55% of the increase in gross earnings. The ratio of working expenses (excluding taxes) to gross earnings of 74.61% was the lowest ratio of any year since 1917, with the exception of 1926 when it was 74.41%.

Maintenance of way and structures expenses increased by $2,119,456, or 10.9%. During the year 1,473,986 treated and 1,609,582 untreated ties were placed in track. New rail laid totalled 229 single track miles. Rock ballast was applied to 108 single track miles between Winnipeg and Fort William completing the rock ballasting of the main line between these points.

Maintenance of equipment expenses increased by $4,955,668, or 17.2%. Effective January 1, depreciation for rolling stock was provided on the basis of use. This involved charges to maintenance to the amount of $10,317,760, as compared with

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charges for retirements in 1939 of $7,411,151. The difference of $2,906,609 reflects the increase in the use of rolling stock as well as the change in the method of accounting. Expenditure on locomotive repairs amounted to $8,864,494 and included the shopping of 572 engines for heavy repairs. The boilers of 15 passenger locomotives were completely renewed, and new tenders were provided for 19 freight locomotives. Expenditure on freight train car repairs amounted to $6,489,285 and included main shop overhauling of 11,738 freight cars. Passenger train car repairs amounted to $5,034,367 and included the overhauling of 1,167 passenger cars. At the close of the year 89.5% of locomotives and 96.0% of freight cars were in serviceable condition, as against 85.6% and 96.5%, respectively, at the end of 1939.

Transportation expenses increased by $3,344,182, or 6.1%. They amounted to 33.97% of gross earnings as compared with 36.18% in 1939. This was the best ratio yet attained. The improvement in transportation performance is further indicated by the following comparisons:

	1940	1939
Freight train fuel consumption—pounds per 1,000 gross ton miles	97	99
Freight train load—tons	1,747	1,717
Freight train speed—miles per hour	17.5	17.2
Gross ton miles per freight train hour	30,653	29,573

Other working expenses increased by a net amount of $2,149,273. As a result of the changed method of accounting for the cost of soliciting ocean steamship traffic, to which reference has previously been made, traffic expenses incurred on account of the ocean steamships have been charged directly against their earnings and are no longer included in railway working expenses. In 1940, expenses so charged amounted to $1,611,692. The expenses of the Immigration and Colonization Department, amounting to $231,837, were included in traffic expenses instead of being charged to Land Surplus as in previous years. While some of the work of this department is still directly related to the sale of lands, the greater part of its activities now has in view the long term traffic benefits brought about by increased settlement and the development of the resources of the country. During the year the salaries of the senior officers and the fees of the Directors were restored to the basic rates of 1930. Taxes were higher by $3,405,373, bringing railway tax accruals for the year up to $7,765,865, an increase of 78.1%.

Other Income

Other income totalled $10,692,163, an increase of $3,927,312, or 58.1%.

Dividend income increased by $77,822. There was an increase of $420,625 in dividends received from The Consolidated Mining and Smelting Company of Canada, Limited, which were at the rate of $2.25 per share as compared with $2.00 in 1939, but this was partially offset by a decrease in other dividends.

Net income from interest, exchange, separately operated properties and miscellaneous sources increased by $87,527. Interest received on deferred payments under land contracts, which heretofore has been credited to Land Surplus, was included for the first time under this caption.

The operation of ocean and coastal steamships resulted in a net profit of $3,075,910, as compared with a net loss in 1939 of $71,274. As reported at the last annual meeting, commencing with their first voyage from the United Kingdom after February 1, most of your Company's Atlantic fleet were requisitioned by the Ministry of Shipping to be operated for the account of the British Government. Some details of hire for requisitioned vessels remained unsettled at the end of the year, and the items affected have been estimated for inclusion in the year's results. As your fleet was intensively used throughout the year, the withdrawal of vessels from service for normal overhaul was necessarily restricted, but adequate provision for maintenance has been made in the accounts. Depreciation was accrued on all ships at the same rate (5%) as adopted by the British Ministry of Shipping in its chartering arrangements. Four of your Company's ocean vessels, having a gross tonnage of 78,666, were sunk by enemy action during 1940, and at the end of the year your fleet was reduced to 246,072 gross tons. The operation of coastal steamships resulted in increased earnings, and no damage of an important nature was sustained by vessels in this service during the year.

There was an improvement of $614,779 in net earnings of hotel, communication and miscellaneous properties, of which amount hotel operations accounted for $228,406 and communications $217,686.

Fixed Charges and Guaranteed Interest

Calculated on the same basis as last year, there was an actual decrease of $206,909 in fixed charges. However, owing to the inclusion under this caption of $886,932 interest on the Twenty Year 4½% Sinking Fund Note Certificates heretofore charged against Land Surplus, fixed charges are shown at a figure $680,023 greater than a year ago. The amount charged Income Account for guaranteed interest on Soo Line bonds is the same as that accrued in 1939.

Dividends

Dividends aggregating $5,042,782, representing 4% on the non-cumulative Preference Stock, were declared from the net income of the year. Your Directors decided that no action should be taken with respect to a dividend for the year 1940 on the Ordinary Capital Stock.

Profit and Loss Account

Following negotiations with the Trustees of the Soo Line certain changes in traffic arrangements with that company were brought about during the year which, it is estimated, will result in an increase in your Company's net earnings of approximately $400,000 per annum on traffic interchanged with that company. The change has necessitated a reduction in the estimate of prospective earnings and consequently of the probable capitalization of the reorganized Soo Line. This and other considerations which have developed during our discussions with the Trustees and representatives of the bondholders have indicated the necessity of making additional provision for impairment in your investment in the Soo Line, and an amount of $10,000,000 was accordingly appropriated from Profit and Loss and credited to investment reserve. However, it may be pointed out that the benefit to your Company from the gain in net earnings above referred to will be much greater than any probable return on the additional junior securities which might otherwise have been received from a larger capitalization of the reorganized company.

Loss on lines abandoned and on property retired and not replaced amounted to $1,539,475. This loss represents the cost of facilities no longer required under conditions and operating methods now prevailing. The lines abandoned were the following:—Ste. Therese to St. Eustache in the Province of Quebec—six miles; Gertrude to O'Donnell in the Province of Ontario—three miles; and Vernon to Okanagan Landing in the Province of British Columbia—four miles.

Land Accounts

During the year, 99,933 acres of agricultural lands were sold for $807,678, an average price of $8.08 per acre. This included 2,173 acres of irrigated land which were sold at an average of $44.83 per acre, and 97,760 acres of other land at an average of $7.27.

Cash receipts on land account totalled $2,596,776, including $232,959 from petroleum rights, coal land rents and royalties and gas royalties. Collections on farm contracts were poor as a result of the slow disposition of the 1940 crop, but this was more than offset by increases in initial installments and deferred payments on timber land and other contracts. Disbursements for land and irrigation expenses, including taxes, totalled $1,394,462, and net cash receipts amounted to $1,202,314.

In pursuance of the policy of rendering assistance to farmers in the Western Provinces who have suffered from adverse conditions throughout the year, your Company continued its concessions on substantially the same terms as in former years. Since 1932, the rebates of interest and concessions for cash payments to holders of farm contracts have totalled $16,842,458.

Balance Sheet

The General Balance Sheet and supporting schedules are in their usual form. The liability for all bonds, notes and equipment obligations of the Company, including the Twenty Year 4½% Sinking Fund Note Certificates, previously carried as a separate item, is recorded under a new caption, Funded Debt.

In connection with the adoption of depreciation accounting for rolling stock $48,134,205 was added to your Company's investment in rolling stock to bring it up to the original cost

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of the units presently in service. An equal amount was concurrently credited to Rolling Stock Depreciation Reserve. As has been previously explained the excess of the cost of units in service over book values arose during the years prior to 1930 when units of rolling stock retired were replaced with new units of greater capacity and at higher prices without making any charge against investment account.

The cost of the four ocean vessels lost during the year, aggregating $23,061,243, was retired from property investment and this cost, less insurance recoverable in respect of the basic values agreed upon with the British Government, was charged against amounts already provided in Steamship Depreciation Reserve. This insurance has been set aside in a Steamship Replacement Fund which, at the close of the year, totalled $18,620,840. Cash as received in settement of claims, together with interest earned by the fund, has been and will be invested in readily marketable securities until such time as conditions are favourable for replacing the tonnage lost. In accordance with the new War Risk Insurance arrangements, which became effective May 8, 1940, further insurance recoveries aggregating more than £600,000 with respect to the vessels other than the "Beaverburn" (which was governed by prior arrangements) are to be placed to the credit of your Company by the Ministry of Shipping in an interest bearing account. The total of the credits to this account will represent the maximum additional amount recoverable as an offset to any increased cost of replacement which may occur. It may be drawn upon, under conditions set forth by the Minister of Shipping, as replacements are effected.

It has become apparent that there is no prospect of realizing any value in the reorganization of The Duluth, South Shore & Atlantic Railway Company from the $3,000,000 Income Certificates of that company issued in 1912 which your Company holds. This asset has, therefore, been written off against investment reserves previously provided. It is anticipated that the book value of your Company's remaining investments in the South Shore will be approximately equal to the amount of the securities which will be issued to your Company in the reorganization.

Finance

Serial 3% Collateral Trust Bonds to the amount of $1,000,000 were redeemed, and $1,152,500 6% Collateral Trust Bonds, due 1942, were purchased and cancelled. The $15,000,000 2½% Collateral Trust Bonds, maturing April 1, 1941, were called for redemption on October 1. Of these bonds, $14,146,000 had been redeemed by the end of the year. The amount owing with respect to the remaining $854,000 of bonds is included in the balance sheet under Other Current Liabilities. Consolidated Debenture Stock to the amount of $19,792,600, pledged as collateral to these bonds, was released and cancelled.

Equipment obligations to the amount of $3,254,769 matured and were paid, and Consolidated Debenture Stock to the amount of $268,000, pledged under Series "D," was released and cancelled. An amount of $2,731,467 was deposited with the Trustee of the Equipment Trust maturing July 1, 1944. Under the terms of the agreement covering that Trust, the Trustee purchased and cancelled $927,000 of the Equipment Trust Certificates.

Serial 4% Secured Notes to the amount of $638,285 were redeemed on February 1, and on such redemption Consolidated Debenture Stock to the amount of $1,306,100 was released and cancelled. Later in the year, owing to the decline in its market value it became necessary to deposit further amounts of Consolidated Debenture Stock to an aggregate of $8,883,600 as additional security for the balance of the Notes. In October, owing to the improvement in its market value, stock to the amount of $5,814,400 was withdrawn and cancelled.

Twenty Year 4½% Sinking Fund Secured Note Certificates to the amount of $784,500 were purchased by the Trustee and cancelled.

Repayment was made to the Dominion Government of $210,940 in reduction of the liability for loans made on account of unemployment relief.

On March 1, $2,000,000 of the 3% Serial Secured Notes, maturing on December 1, were prepaid. On December 2, the notes of this issue, maturing December 1, 1941, and December 1, 1942, and aggregating $4,000,000 were prepaid. As a result of such prepayments Consolidated Debenture Stock to the amount of $3,600,000 was released and cancelled, and 100,000 shares of Capital Stock of The Consolidated Mining and Smelting Company of Canada, Limited, were released.

The financial transactions for the year set forth above resulted in the retirement without refunding of $29,929,680 of bonds, notes and other obligations, and in a reduction of $21,897,500 in the amount of Debenture Stock issued as collateral.

New equipment to the value of $9,951,490 was acquired during the year, and the cost was covered by a hire-purchase agreement entered into with the Dominion Government. Under the agreement the principal amount is repayable in equal annual installments of $663,432 from June 6, 1941, to June 6, 1955, with interest at the rate of 3½% per annum on the unpaid balance, payable semi-annually.

Pensions

Working expenses during the year were charged with $3,372,570, representing contributions and levies for pensions and annuities in respect of employees who come under your Company's pension plan and the United States Railroad Retirement Act. Included was the first of a number of special annual contributions of $400,000 authorized by your Directors to be made directly to the Pension Trust Fund. Actuarial reports have shown that, at the existing wage and employment levels, the outlay for pensions will continue to increase for a number of years. Thereafter, as the proportion of the allowance paid from the Pension Trust Fund increases, the cost to your Company will decline somewhat and then become stabilized. The special annual contributions are designed to assist in meeting the anticipated peak period of cost. Pension allowances paid by your Company during 1940 amounted to $2,893,545.

Employees retired during the year and eligible for allowances under your Company's pension plan numbered 636. Deaths and other causes removed 271 pensioners from the roll, and at December 31 the number of survivors and their distribution by ages were as follows:

Under 60 years of age	242
From 60 to 64 years of age inclusive	437
From 65 to 70 years of age inclusive	1,971
Over 70 years of age	1,514
	4,164

Minneapolis, St. Paul & Sault Ste. Marie Railway Company

The comparative railway operating results of this company were as follows:

	1940	1939	Increase
Gross Earnings	$16,669,060	$14,873,396	$1,795,664
Working Expenses (including taxes)	14,632,782	14,030,423	602,359
Net Earnings	$2,036,278	$842,973	$1,193,305

Increased traffic in grain and iron ore was largely responsible for the improvement in gross earnings. The grain crop harvested in the area tributary to the Soo Line was the largest since 1930, amounting to approximately 40 million bushels as compared with 34 million in 1939. Maintenance of way and structures accounted for more than half of the increase in working expenses, with transportation making up most of the balance. Net earnings, though improved, were still far from adequate for interest requirements.

Negotiations between your Company and representatives of holders of Soo Line Bonds have recently resulted in an agreement in principle and the Trustees of the Soo Line are now engaged in the preparation of a plan of reorganization for submission to the Court and the Interstate Commerce Commission. It is expected that the plan will be filed before April 1, 1941.

Of the various actions, mentioned in the annual report for 1939, claiming that the obligation of your Company under its guarantee of interest on the First Consolidated Bonds remains in effect until the principal amount is paid, one action has been dismissed for want of jurisdiction and in another, which has come to trial, judgment was given in favour of your Company. No appeal has been taken in either of these cases. The other actions referred to, including that in the Circuit Court of Cook County, Illinois, are still pending.

The Duluth, South Shore & Atlantic Railway Company

The comparative railway operating results of this company were as follows:

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	1940	1939	Increase
Gross Earnings	$2,569,730	$2,272,514	$297,216
Working Expenses (including taxes)	2,290,008	2,189,427	100,581
Net Earnings	$279,722	$83,087	$196,635

The increase in gross earnings resulted largely from improvement in general freight traffic. More than three-quarters of the increase in working expenses was for maintenance.

Negotiations with representatives of holders of First Mortgage Bonds were continued during the year, but the institution by certain holders of an action to settle the questions underlying the allocation of new securities has delayed the filing of a plan of reorganization. The time within which a plan must be filed has been extended by the court to May 31, 1941.

Rates and Services

Except for twelve new agreed charges, put into effect during the year, and the special rates covering the export movement of lumber and timber from British Columbia, which have been previously mentioned, there was no material change in the general level of freight rates. The freight revenue per ton mile was the lowest since 1918, being 0.84 cents as compared with 0.85 cents in 1939.

Partly as a result of heavy military traffic at low rates, passenger revenue per passenger mile reached the lowest level since 1916, being 1.97 cents as compared with 2.06 cents in 1939. Local bargain excursion traffic was heavier than in the previous year.

The capacity of your Company to meet the growing demands upon it for fast and efficient freight and passenger service was further increased by the delivery to it during the year of the rolling stock to which reference was made in the last annual report and of 200 of the freight cars ordered subsequently. Of the 29 new locomotives received, 12 of the Pacific type were placed in freight service on sections of the main line having relatively light grades; 12 of the heavy Mikado type were assigned to territories having more severe operating conditions; and 5 of the Royal Hudson type, oil burning and equipped with boosters, have been assigned to passenger service west of Revelstoke, B. C. The Pacific type and the Royal Hudson type are suitable for both heavy passenger and fast freight service. The 1,500 new freight cars received consisted of 1,000 standard 40-ton steel box cars, 200 70-ton steel gondola cars, 200 refrigerator cars equipped with overhead brine tanks, and 100 automobile cars of the latest type. Ten 70-foot mail and express cars of all-steel construction were received and put into service on main line passenger trains during the year.

Wartime Activities

At the outbreak of war, your Company placed all of its facilities, services and staff at the disposal of the Governments of Great Britain and Canada, and has taken measures to insure the fullest co-operation with every Government agency. With its well maintained properties and equipment it has been able to meet, efficiently and expeditiously, all calls made upon it as a result of the expansion of national productive activities and the transportation of His Majesty's forces and war supplies.

The manufacturing facilities of your Company's shops are being used increasingly for the production of materials of war. Tanks and other equipment are being made at the Angus Shops in Montreal, and preparations are being made to produce naval guns and mountings at the Ogden Shops in Calgary.

All of your Company's ocean steamships are now either in naval service or being operated for the account of the British Government. On February 5, the freight steamship "Beaverburn" was torpedoed and sunk. On October 26, your Company's flagship, the "Empress of Britain," after defending herself gallantly against an attack by enemy aircraft, was set on fire by bombs, and was torpedoed and sunk while being towed to port. On November 5, the freight steamship "Beaverford" was sunk by an enemy raider, and in December the "Montrose," which had been commissioned as an armed cruiser, was torpedoed and sunk. On November 9, the "Empress of Japan" was attacked by aircraft, but, through the courage and skill of her officers and crew,

Canadian Pacific Railway Company

General Balance Sheet, December 31, 1940

Assets

Property Investment:		
Railway, Rolling Stock, Inland Steamships, Hotel, Communication and Miscellaneous Properties	$846,653,117.55	
Improvements on Leased Railway Property	96,959,008.67	
Ocean and Coastal Steamships	81,784,632.96	
Stocks, Bonds and Other Securities of Leased, Controlled and Jointly Controlled Railway Companies and Wholly Owned Companies	195,967,035.74	$1,221,363,794.92
Other Investments:		
Miscellaneous Investments—Cost	$26,312,067.27	
Advances to Controlled and Other Companies	25,937,756.67	
Mortgages Collectible and Loans & Advances to Settlers	3,769,892.39	
Insurance Fund Investments	8,265,674.54	
Deferred Payments on Lands and Townsites	32,267,948.44	
Unsold Lands and Other Properties	24,689,654.62	
Steamship Replacement Fund	18,620,839.99	139,863,833.92
Current Assets:		
Material and Supplies	$18,857,226.37	
Agents' and Conductors' Balances	9,267,656.83	
Miscellaneous Accounts Receivable	8,095,957.09	
Cash	38,029,312.29	74,250,152.58
Unadjusted Debits:		
Insurance Prepaid	$150,762.30	
Unamortized Discount on Bonds	2,307,418.09	
Other Unadjusted Debits	448,514.87	2,906,695.26
		$1,438,384,476.68

Liabilities

Capital Stock:		
Ordinary Stock	$335,000,000.00	
Preference Stock—4% Non-cumulative	137,256,921.12	$472,256,921.12
Perpetual 4% Consolidated Debenture Stock	$479,421,128.74	
Less: Pledged as collateral to bonds, notes and equipment obligations	183,982,900.00	295,438,228.74
Funded Debt	$219,101,211.95	
Less: Securities and cash deposited with Trustee of 5% Equipment Trust	11,311,736.70	207,789,475.25
Current Liabilities:		
Audited Vouchers	$5,150,263.36	
Pay Rolls	3,232,097.26	
Net Traffic Balances	731,338.08	
Miscellaneous Accounts Payable	4,577,649.68	
Accrued Fixed Charges and Guaranteed Interest	2,476,046.62	
Unmatured Dividend Declared	2,521,390.85	
Other Current Liabilities	5,282,400.36	23,971,186.21
Deferred Liabilities:		
Dominion Government Unemployment Relief	$3,428,162.71	
Miscellaneous	2,404,201.38	5,832,364.09
Reserves and Unadjusted Credits:		
Rolling Stock Depreciation Reserve	$61,792,225.52	
Hotel Depreciation Reserve	7,117,252.69	
Steamship Depreciation Reserve	51,988,550.56	
Investment Reserves	17,526,313.32	
Insurance Reserve	8,265,674.54	
Contingent Reserves	5,184,830.86	
Unadjusted Credits	2,711,098.18	154,585,945.67
Premium on Capital and Debenture Stock		68,551,646.45
Land Surplus		65,913,413.69
Profit and Loss Balance		144,045,295.46
		$1,438,384,476.68

Auditors' Certificate:

We have examined the Books and Records of the Canadian Pacific Railway Company for the year ending December 31, 1940, and having compared the above Balance Sheet and related schedules therewith, we certify that in our opinion it is properly drawn up so as to show the true financial position of the Company at that date, and that the Income and Profit & Loss Accounts correctly set forth the result of the year's operations.

PRICE, WATERHOUSE & CO.,
Chartered Accountants.

Montreal, March 7, 1941.

E. A. LESLIE, *Comptroller.*

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escaped with only slight damage. It is with the deepest regret that the loss of 401 officers and men must be reported as a result of these encounters.

The steamship "Niagara" of the Canadian Australasian Line, Limited, in which your Company has a one-half interest, was sunk by a mine on June 18, fortunately without loss of life.

An Air Services Department has been organized by your Company in co-operation with the British Ministry of Aircraft Production and is performing important services connected with the movement of military aircraft. Your Company is reimbursed only for the direct costs incurred in performing these services.

The Chairman and President of your Company has continued to act as the representative in Canada of the British Ministry of Shipping, assisted by a number of traffic and steamship officers. A large number of the directors, officers and employees of your Company have been engaged in advisory, executive and technical duties in many of the war activities of the United Kingdom and the Dominion.

In addition to the services rendered by the members of your Company's staff in connection with the foregoing activities, 2,399 officers and employees had, up to the end of 1940, enlisted in the armed forces, while a large number of others are preparing for military or naval service in reserve units and training corps.

Other wartime activities have been encouraged and facilitated. The National Registration of your Company's officers and employees in Canada was carried out with the fullest co-operation of those concerned. War Savings Stamps have been placed on sale at all your Company's agencies in the Dominion, and an active campaign has been carried on throughout the system to encourage the regular purchase of War Savings Certificates by means of deductions from wage and salary cheques. A special appeal, sponsored by the employees, has been made for contributions of old gold to the "Canadian Pacific Golden Bomber Fund," and a substantial amount has already been collected. Red Cross units and other patriotic activities have been organized extensively among the employees, and the use of your Company's facilities has been made available for such purposes.

During the year your Directors authorized a contribution of $150,000 to a committee established under the auspices of the Government of Canada to conduct special scientific research in connection with war activities, in collaboration with the National Research Council.

The spread of the conflict throughout Europe has seriously affected your Company's activities. All the agencies in territory occupied by the enemy have been abandoned. The members of the staff evacuated from these offices have been zealous in the protection of your Company's interests, often at considerable personal hazard. The officers and employees in Great Britain, and other zones of active combat, deserve the highest commendation for their continued conduct of business under circumstances of great danger. Your Company's office building at Southampton was demolished in a bombing raid.

Capital Expenditures

In anticipation of your confirmation, your Directors authorized capital appropriations for the year 1940 amounting to $4,991,093 in addition to those approved at the last annual meeting. Of this amount $3,568,939 was for the purchase of new rolling stock of which 200 gondola cars were received during the year and the balance, consisting of 300 twin hopper coal cars, 25 first class coaches and 10 baggage and express cars, are for delivery in 1941.

Capital appropriations for the present year, for which your approval will be requested, total $15,146,313, the principal items being as follows:

Replacement and enlargement of structures in permanent form	$179,421
Additions and betterments to stations, freight sheds, coaling and watering facilities and engine houses	1,023,178
Ties, tie plates, rail anchors and miscellaneous roadway betterments	1,653,270
Replacement of rail in main and branch line tracks with heavier section	616,953
Installation of automatic signals	84,620
Additions and betterments to shop machinery	209,120
Additional terminal and side track accommodation	442,477
New rolling stock	9,730,950
Additions and betterments to rolling stock	740,591
Additions and betterments to hotels	39,586
Additions and betterments to communication facilities	344,567

The appropriations for new rolling stock provide for the purchase of 35 Pacific type locomotives, 250 twin hopper coal cars, 250 three hopper coal cars, 500 box cars, 150 automobile cars, 25 conductors' vans and 25 first class coaches. The interior finish for the first class coaches will be applied in your Company's Angus Shops.

Co-operation With the Canadian National Railways

Studies with a view to co-operative projects under the provisions of the Canadian National-Canadian Pacific Act were continued throughout the year, but only one additional project, the abandonment of 24.6 miles of Canadian National line between St. Canut and Cushing Junction, Quebec, was made effective. The territory formerly served by this line is now served exclusively by your Company, and the net economy secured by the abandonment, estimated at $24,000 per annum, is being shared equally between the two railways.

During the year, the Board of Transport Commissioners issued orders approving applications involving abandonment of 108.7 miles of line, and disallowing abandonment in respect of 56.7 miles. At the end of the year, applications remaining before the Board comprised 372.3 miles of line, including 238.1 miles operated by your Company.

Co-operative measures now in effect are estimated to produce an annual net economy of $1,172,000, one-half of which accrues to each Company, while projects pending, most of which are subject to approval by the Board of Transport Commissioners, are estimated to produce a further joint saving of $705,000 per annum.

Agreements

The following agreements made by your Directors will be submitted for your approval:—

1. Agreement dated June 15, 1940, between the Canadian National Railway Company and your Company made pursuant to the Canadian National-Canadian Pacific Act of 1933, which directs the two companies to endeavor to agree upon co-operative measures, plans and arrangements for the purpose of effecting economies and providing for more remunerative operations. Under this agreement the Canadian National Railway Company agrees to abandon the operation of its line of railway paralleling the line of your Company between Cushing Junction and a point approximately two miles easterly of St. Canut in the Province of Quebec, a distance of 24.6 miles, and to discontinue its communications and express businesses in the territory between Cushing Junction and the said point, the burden and advantage resulting from the abandonment to be equitably distributed between the two companies by a monthly payment by your Company to the Canadian National Railway Company of $502 which may be commuted by a capital sum payment of $120,674.

2. Agreement dated as of January 1, 1938, between His Majesty the King, represented by the Minister of Transport, and your Company, whereby your Company is granted the right to have its tracks connected with the tracks of His Majesty at points in the City of Fredericton and the Town of South Devon in the Province of New Brunswick and to operate its trains, engines and cars with its own crews over the tracks of His Majesty between Fredericton and South Devon for the purpose of passing over the bridge of His Majesty across the St. John River and of turning trains, engines and cars on the wye tracks of His Majesty in Fredericton, all for a period of 21 years renewable as therein provided and on terms and conditions whereby your Company is to pay to His Majesty 40% of the interest at 4½% per annum upon the joint section capital account as agreed to from time to time, 40% of rentals paid on such leased property as may be added to the joint section, a wheelage proportion of the maintenance and operation expenses of the joint section, and a charge of $1.00 for each turning movement on the wye tracks.

Stock Holdings

The holdings of the Capital Stock of your Company at December 31 were as follows:

	Ordinary		Preference		Total
	No. of Holders	Percentage of Stock	No. of Holders	Percentage of Stock	Percentage of Stock
Canada	26,408	18.04	158	.94	12.98
United Kingdom and other British	19,204	53.03	25,557	95.96	65.75

[Advertisement]

United States	15,366	22.63	56	.26	16.00
Other Countries	3,541	6.30	590	2.84	5.27
	64,519		26,361		

Changes in Directorate

It is with deep regret that your Directors record the death, on September 10, of the Honorable J. Marcelin Wilson, who had been a member of the Board since August, 1935.

Mr. L. J. Belnap was appointed a Director to fill the vacancy caused by the death, in 1939, of Sir Charles Gordon, and Mr. Aimé Geoffrion, K.C., was appointed to succeed the Honorable Mr. Wilson.

Retiring Directors

The undermentioned Directors will retire from office at the approaching annual meeting. They are eligible for re-election:

Sir Edward Beatty, G.B.E.
Mr. Aimé Geoffrion, K.C.
Mr. G. Blair Gordon
Rt. Hon. Arthur B. Purvis, P.C.

It is with sincere appreciation that your Directors acknowledge the continued efficiency and unfailing loyalty of the officers and employees of your Company under conditions of great national stress.

For the Directors,

E. W. Beatty,
President.

Montreal, March 10, 1941.

[Advertisement]

NEWS

(*Continued from page 584*)

above those in 1939. For roadway and structures, expenditures in 1940 showed an increase of $28,600,000 compared with the preceding year.

Expenditures for freight-train cars in 1940 totaled $189,629,000, compared with $66,779,000 in 1939. For locomotives, Class I roads expended $54,351,000 in 1940, compared with $42,807,000 in 1939. Expenditures for passenger train cars amounted to $18,417,000 in 1940, compared with $19,723,000 in the preceding year. For other equipment, the railroads in 1940 expended $9,509,000, which was slightly more than twice the amount spent for that purpose in 1939.

Class I roads also spent more in 1940 for improvements to their tracks, shops and engine houses, and for signals and interlockers than they did in the preceding year. Among these expenditures was $30,473,000 for heavier rail, an increase of approximately $4,000,000, compared with such expenditures in 1939. For bridges, trestles and culverts, they made capital expenditures in the past year of $22,596,000, compared with $21,196,000 in 1939. The railroads also expended $11,074,000 in 1940 for additions and betterments to shops and engine houses including machinery and tools, an increase of nearly $2,000,000 above the year before and for signals and interlockers, including telegraph and telephone lines, automatic train control and similar purposes, they spent $10,275,000 in the past year compared with $6,741,000 in 1939. In addition, they spent nearly $5,000,000 for additional ballast and nearly $8,000,000 for improvements to station and office buildings and other station facilities. For other improvements to roadway and structures, their capital expenditures amounted to $52,320,000 contrasted with $38,087,000 in the preceding year.

"These figures as to capital expenditures in 1940," the A. A. R. statement said, "reflect only in part the stimulation that has taken place in the purchase of new equipment. Class I railroads in 1940 put 65,545 new freight cars and 419 new locomotives in service. On January 1, 1941, there were 35,702 new freight cars and 206 new locomotives on order. Purchase of this equipment was for the most part authorized in 1940, but construction and delivery could not be completed within that year. Reports just received from the Class I railroads show that the carry over into 1941 from the preceding year of all unexpended authorizations for equipment and road way and structures amounted to $224,405,000."

Capital expenditures made annually by the Class I railroads in the past eleven years follows:

1940	$429,147,000
1939	262,029,000
1938	226,937,000
1937	509,793,000
1936	298,991,000
1935	188,302,000
1934	212,712,000
1933	103,947,000
1932	167,194,000
1931	361,912,000
1930	872,608,000

Senate Passes Forwarder Regulation Bill

The Senate this week passed S. 210, the forwarder regulation bill introduced by Senator Reed, Republican of Kansas, on behalf of himself and Chairman Wheeler of the Senate committee on interstate commerce, while the House committee on interstate commerce concluded public hearings on H. R. 3684, the forwarder regulation bill introduced by Chairman Lea. The Wheeler-Reed bill went through the Senate on March 24 without discussion except for the explanation by Senator Reed and Majority Leader Barkley's endorsement of the Kansan's plea for prompt passage.

"We have," Mr. Barkley said, "all received many letters in behalf of this proposed legislation, and apparently there is no serious opposition to it from any responsible quarter." Aside from one which would authorize forwarders to utilize the services of air carriers, the only amendments to S. 210 were committee amendments embodied in the favorable report which was noted in the *Railway Age* of March 22, page 534.

Concluding hearings on H. R. 3684 again brought to the fore conflicting opinions of different railroads with respect to forwarders. All railroad representatives, however, were agreed in their opposition to permitting forwarders to enter joint rates with carriers, although some of them would mitigate the blow by having the carriers authorize to publish special rates for forwarder traffic. Speaking for his own road and the Western roads generally, Frank W. Robinson, vice-president of the Union Pacific in charge of traffic, said that forwarders have been "particularly beneficial" to the railroads in competition with highway carriers. On the other hand Walter Franklin, traffic vice-president of the Pennsylvania, asserted that "there is nothing the forwarders do that can not be duplicated and improved upon by the railroads." Messrs. Robinson and Franklin, as well as other railroad representatives, were most emphatic in their denials of the charge that less-than-carload business is not desired by the railroads; and in that connection all cited numerous instances of railroad efforts to improve such service and make it more attractive.

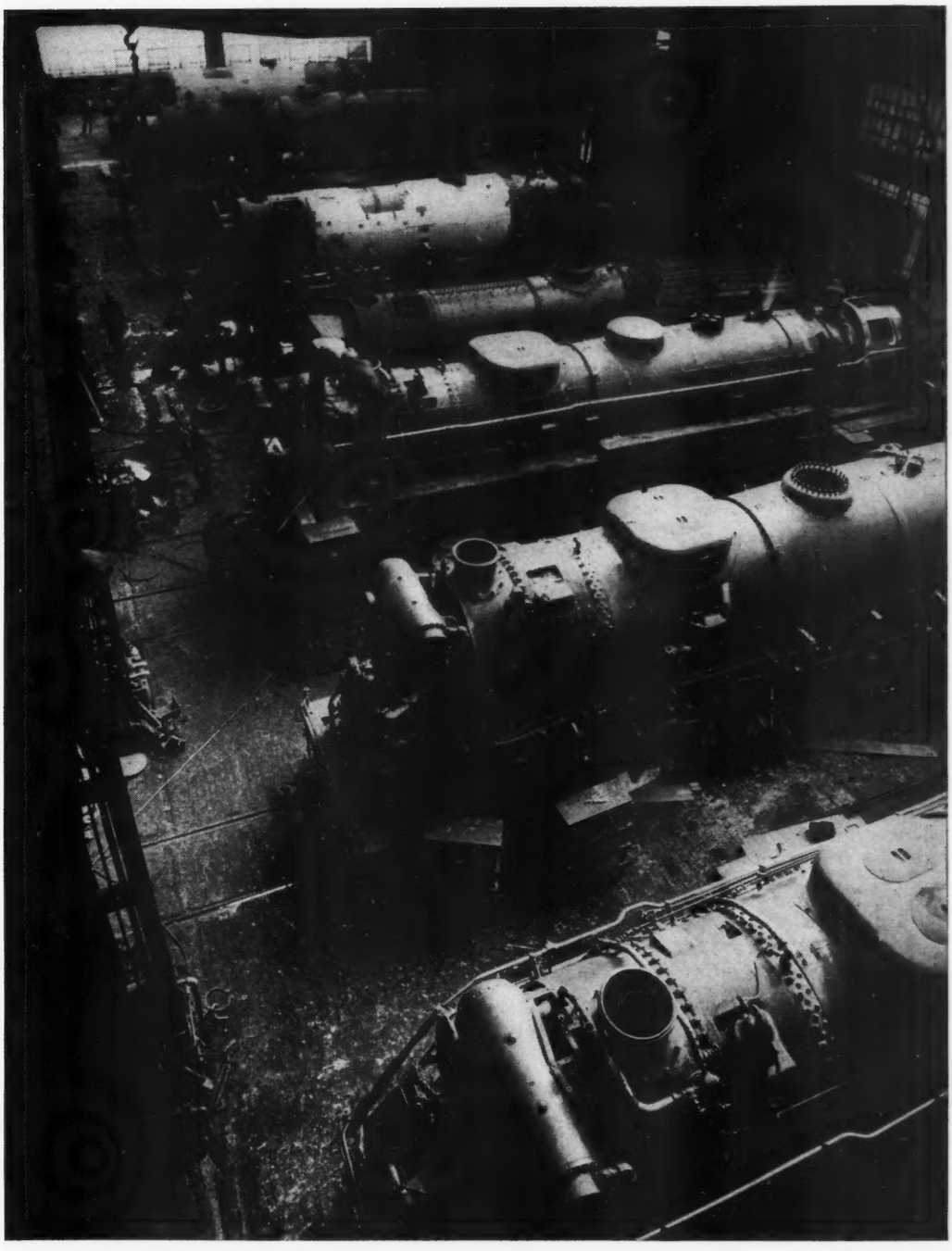
From his tribute to forwarding as an "efficient and really worthwhile service," Mr. Robinson proceeded to state his general view that the forwarder should be regarded as a common carrier in his relationships with shippers, but should continue in a shipper role in relationship with carriers whose services are utilized. Stated otherwise, Mr. Robinson was in "full accord" with the views of I. C. C. Chairman Eastman as set forth in the latter's separate expression accompanying the I. C. C. letter to Chairman Lea, which was reviewed in last week's issue. While condemning the joint-rate provisions, Mr. Robinson, like Mr. Eastman, would allow the carriers to publish proportionals applicable on forwarder traffic; and he would also go along with the I. C. C. chairman in allowing a year in which to make the necessary adjustments. Because of Mr. Eastman's long experience, Mr. Robinson suggested that the Eastman views should be given "somewhat more" consideration than those of the I. C. C. majority. The U. P. vice-president said that such study has changed the view of Mr. Eastman who once thought that the forwarders should go "out the window;" that the railroads should perform forwarding services themselves.

Vice-President Franklin of the P. R. R. called attention to the fact that his view with respect to forwarders was like that of the I. C. C. majority. At the same time, he asserted that, "contrary to the general opinion," the Pennsylvania has not opposed forwarder operations; it has merely maintained that it has the right to sell its merchandise service directly. And its studies show that its profits are higher when the business is handled that way. Moreover, the P. R. R. does not oppose regulation of forwarders, but it objects to any such provision as a grandfather clause or those relating to certificates which would require a railroad to make a showing of convenience and necessity if it later desired to adopt the forwarder method of operation.

The development of the forwarder, Mr.

Continued on next left-hand page

"LIMA-BUILT POWER



. . . is dependable power"

High speed and high power are making ever-increasing demands on the locomotive . . . Closer tolerances and greater strength of parts are fundamental to low maintenance and dependability . . . Hence the importance to the railroads of the builder's facilities and reputation for a sound product . . . Such a reputation Lima has long enjoyed.

LIMA LOCOMOTIVE WORKS INCORPORATED

LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO

Franklin said at another point, can be attributed "almost entirely" to past methods of rate making, which are being changed by revisions of the classification ratings. When the forwarder speaks of "service," he went on, "it is important to remember that the service he gives the public is made possible by the efficient operations of the carriers." Moreover, Mr. Franklin added, a forwarder could not exist without operating in one of the country's "traffic reservoirs;" many small shippers in small communities "never heard of forwarders."

Other representatives of railroads making brief presentations at the hearings included P. P. Hastings, vice-president of the Atchison, Topeka & Santa Fe; J. L. Sheppard, freight traffic manager of the Illinois Central; R. G. Hodgkin, freight traffic manager of the Atlantic Coast Line; J. E. Tilford, assistant vice-president of the Louisville & Nashville; Joseph Marks, assistant freight traffic manager of the Southern; and G. G. Early, chief traffic officer of the Wabash.

Meanwhile representatives of forwarders specializing in one commodity, or pool car operators, and shippers had testified, their main desire being that the bill's specialized minimum-rate rule be eliminated. That rule stipulates that no forwarder rate shall be lower than the lowest rate published by common carriers operating on the route involved. Appearing for the National Industrial Traffic League, John B. Keeler, chairman of the League's Legislative Committee suggested a substitute definition of forwarders, opposed the minimum-rate rule, favored broader exemptions for certain types of forwarding operations; and objected to the bill's "commodities clause." With respect to joint-rate arrangements, the League would not disturb the present set-up unless the motor carriers are allowed to make proportionals lower than local rates on the forwarder traffic. Rebuttal testimony on behalf of the Freight Consolidators & Forwarders Institute was offered by its chairman—Fisher Dorsey, vice-president of the Lone Star Package Car Company.

I. C. C. Accounting Order

The Interstate Commerce Commission, Division 1, has issued an order substituting a new set of accounts for the present ones appearing in the Income Statement form under headings III, Miscellaneous Deductions from Income; IV, Other Deductions; V, Fixed Charges; VI, Contingent Charges; and VII, Disposition of Net Income. The order is dated March 19, and the changes will become effective January 1, 1942.

British Roads Net $172,000,000 Under Pool Scheme

The four British main-line railroads and the London Passenger Transport Board, the revenues of which are pooled under the government Railway Control Order of 1939, had a net income of £42,763,000 ($172,334,890, with £ at $4.03) for 1940. Gross revenues were £247,992,000 and operating expenses, including provisions for repair of war damage, were £203,480,000. Other items included in the pool made further expenditures of £1,749,000. The guaranteed net revenue for the full year under the control order is £39,850,000.

Plans may be presented by Transport Minister J. T. C. Moore-Brabazon in the near future for unification of the British railroads, according to the Canadian Press. The main reason given is that the government seeks to economize by eliminating overlapping and competing services. That unification may be permanent is also indicated, although final financial settlement will have to wait until after the war.

Armco Develops New Passenger Car Wheel

A new high-speed passenger car wheel especially resistant to internal stresses developed in service has been announced by W. W. Sebald, vice-president, American Rolling Mill Company, Middletown, Ohio. Chief factor in the five years of research preceding its production was a testing-machine developed by the company which made it possible to simulate the effect of thousands of actual service miles within several hours. This machine can produce complete failure of wheels due to breaking through the rim and plate as in actual service.

To achieve a wheel having resistance to both low initial stresses and cumulative service stresses, engineers of the company first made metallograph-studies of wheels in service to determine the cause of thermal cracking. They then made a laboratory test on the machine mentioned above of the behavior of every analysis of steel used or proposed for passenger car wheels. By these methods a composition of steel possessing the properties desired was determined.

Want to Write a Book?

Manuscripts for a book on the subject of railroading are invited by the House of Field, Inc., book publishers of 19 W. 44th Street, New York, up to July 15, 1941. Editors of the firm explain that they prefer fiction, but will consider readable historical sketches. Ph.D. theses needn't apply. For illustration of the type of book desired, they point to the novel "Rome Haul," an accurate description of life on the Erie canal, which became a "best seller" and later the motion picture "The Farmer Takes a Wife."

Chinese Seek Railroad to Carry Burma Road Freight

Mr. Tu Chen-yuan, an engineer of the Chinese National Government, is expected to visit the United States shortly to negotiate with government authorities and private manufacturers for the finance and purchase of supplies and materials to build a new railroad from Burma to the southwest province of Yunnan, according to the official Chinese Central News. It is reported that the projected railroad would carry more cheaply freight now hauled by trucks on the famous Burma road, so-called "Chinese overland life line."

Express Agency Tries Synthetic Rubber Tires

A number of tires made with Ameripol, a synthetic rubber created by the B. F. Goodrich Company from petroleum, natural gas, soap and air, have been purchased by the Railway Express Agency and are being apportioned among its various districts as a means of acquainting company officials and employees with this new development. The decision of the Agency to try the synthetic tires is based upon a desire to "contribute toward the creation of an industry which might prove as valuable to national security as battleships and planes."

* * * *

Photo Courtesy Canadian National

This Float Carried on a Canadian National P. & D. Truck Appeared in a War Savings Parade Held Recently in Montreal, Que., to Announce That 80,000 Employees of the System Have Pledged Monthly Support to the War Savings Certificate Campaign

Continued on next left-hand page

"Engineered for Easy riding"

The Type E-2 Radial Buffer makes a safer, easier riding locomotive. » » » Its spherical and cylindrical faces permit movement in any direction, while its predetermined frictional resistance dampens oscillation between engine and tender, prevents lost motion and subsequent destructive shocks to drawbar and pins. » » » Its twin, the Franklin Automatic Compensator and Snubber, takes the job of maintaining proper driving box adjustment that further improves smoothness of operation and extends locomotive mileage and reduces maintenance costs. It is particularly essential on roller bearing boxes.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK CHICAGO MONTREAL

Construction

GREAT NORTHERN.—A contract has been awarded to N. A. Degerstrom, Spokane, Wash., for the grading work on the construction of 8 miles of line from Galena, Wash., to Sunset Airport. The grading will consist of 1000 cu. yd. of rock and 34,000 cu. yd. of common excavation.

MISSOURI - KANSAS - TEXAS.—The Missouri State Highway Department has awarded a contract amounting to $108,219 to Otto Knutson, Kansas City, Mo., for the Construction of a bridge for U. S. Highway No. 40 over the Missouri-Kansas-Texas and Salt creek in Howard County. The bridge will consist of two continuous I-beam spans, each 52 ft. long, and two series of three continuous plate girder spans, 80, 100 and 80 ft. long and 67, 78 and 67 ft. long, carrying a 26-ft. roadway and supported on concrete bents and abutments of open type construction.

MISSOURI PACIFIC. — This company has asked the Interstate Commerce Commission for authority to extend its lines to a connection with a line of the Chicago, Burlington & Quincy at Fort Crook, Nebr., 3,500 ft., in order that it may serve a new bomber assembly plant now under construction at Fort Crook.

MISSOURI PACIFIC.—A contract has been awarded J. J. Wuellner & Son, Alton, Ill., for the construction of a passenger station mid-way between Arcadia, Mo., and Ironton. The station will serve both towns which are about a mile and a half apart. The plans for the station call for a red granite building 80 ft. by 26 ft., with English architectural treatment. The work will cost about $49,000, representing $32,000 for the station and $17,000 for grading track work, etc.

SOUTHERN PACIFIC.—Morrison-Knudsen Company, Inc., and M. H. Hasler, Los Angeles, Cal., with a bid of $33,002, were the low bidders for the construction of a single track bridge for the Southern Pacific over the Coachella Canal near Iris, Cal. The bridge will cross the canal at an angle of approximately 50 deg. and will consist of three girder spans, each about 42 ft. long, resting on reinforced concrete piers with steel foundation piling. It will have a concrete slab floor and ballast deck.

THE UNITED STATES WAR DEPARTMENT, Engineers Office, Los Angeles, Cal., has awarded a contract for $9,495 to the T. A. Kvale Company of that city for construction of a spur and appurtenant facilities from the Western Pacific railroad at the Wendover Bombing Range, Wendover, Utah.

U. S. GOVERNMENT.—A contract amounting to approximately $200,000 has been awarded the Acme Railroad Construction Company, Cleveland, Ohio, for the construction of about seven miles of railroad sidetrack, including rails, ties, fastenings and ballast, and 33 crossings.

Equipment and Supplies

LOCOMOTIVES

THE NORFOLK & WESTERN has placed an order for six Mallet type locomotives with the company's own shops.

THE READING has been authorized by the company's board of directors to purchase ten Diesel-electric switching locomotives comprising 2 of 1000 hp., 5 of 600 hp. and 3 of 660 hp.

THE STANDARD FRUIT & STEAMSHIP CO. has ordered one 2-8-0 type locomotive of 3 ft. gage from the American Locomotive Company for service in Honduras.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS has ordered eight 1,000 hp. Diesel-electric switching locomotives, placing three with the American Locomotive Co.; two with the Baldwin Locomotive Works and three with the Electro-Motive Corp.

FREIGHT CARS

THE PENNSYLVANIA will build 50 container cars of 90 tons' capacity in company's own shops.

THE DELAWARE & HUDSON has ordered five well cars of 100 tons' capacity from company's own shops.

THE RUSSIAN GOVERNMENT is reported to be in the market for 100 air-dump cars of 70 tons' capacity.

THE READING will build 500 52-ft. 6-in. high-side, drop-end steel gondola cars of 70 tons' capacity in the company's own shops.

The UNION PACIFIC, reported in the *Railway Age* of March 1 as contemplating ordering 500 stock cars, has decided to meet its requirements by rebuilding and converting certain cars in the company's own shops.

THE ILLINOIS CENTRAL is inquiring for 2,400 freight cars as follows:

1,000 33-ft. 60-ton hopper cars
1,000 50½-ft. 40-ton wood lined box cars
100 70-ton all-steel hopper cars
100 52-ft. 50-ton flat cars
200 40-ton all-steel refrigerator cars

THE CHESAPEAKE & OHIO has placed orders for 1,000 hopper cars of 50 tons' capacity as follows:

400 American Car & Foundry Company
300 General American Transportation Corporation
300 Pullman-Standard Car Manufacturing Company

THE MINNEAPOLIS & ST. LOUIS has ordered fifty 40-ft. 6-in. steel box cars of 50 tons' capacity from the Pullman-Standard Car Manufacturing Company. Inquiry for this equipment was reported in the *Railway Age* of February 8.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE has ordered 60 flat cars of 50 tons' capacity and 150 box cars of 50 tons' capacity from the Pullman-Standard Car Manufacturing Company, subject to the approval of the district court. Inquiry for this equipment was reported in the *Railway Age* of December 7.

THE BALTIMORE & OHIO is reported to have ordered additional 50 cement cars of 70 tons' capacity from the Greenville Steel Car Company. The inquiry for these cars was reported in the *Railway Age* of February 22.

PASSENGER CARS

THE NORFOLK & WESTERN has purchased from the Pullman Company, 35 all-steel used Pullman chair cars which will be converted into passenger coaches. Ten of the cars will be converted by the railroad in its shops and 25 by the Pullman-Standard Car Manufacturing Company. Each reconditioned car will be equipped with 43 walk-over type seats and will have a seating capacity of 86 persons. An electric water cooler, wash basin, and other conveniences will be located at each end of the cars.

SIGNALING

THE DENVER & RIO GRANDE WESTERN has placed an order with the General Railway Signal Company covering materials for 38 miles of absolute permissive block signaling between Bond, Colo., and Dotsero. The order includes rectifiers, transformers, code transmitters, and code-following relays for 12 coded track circuits. These track circuits are to be used for detection only, the longest being 8,500 ft.

THE BOSTON & MAINE has placed an order with the General Railway Signal Company covering materials for centralized traffic control on the new line being built above high-water in connection with the construction of a flood control dam at Birch Hill, Mass. One control point on this line is to be controlled from an existing machine at Gardner, Mass. The order includes 4 Model-5D dual-control switch machines, 20 Type-SA searchlight signals, 2 outlying switch locks, 10 relay cases, one 8-ft. by 8-ft. housing, 120 relays of various types, rectifiers, and transformers.

THE DENVER & RIO GRANDE WESTERN has placed an order with the General Railway Signal Company covering materials for additions to the existing centralized traffic control system between Grand Junction, Colo., and Midwest. The addition, controlling ends of two passing sidings between Midwest, Colo., and Tunnel, includes one 10-in. wide sectional unit with its operating panel, associated C. T. C. relays and field cabinets. The order also includes 4 Model-5D dual-control low-voltage switch machines, 4 Type-D, 2-arm signals, 4 Type-SA dwarf signals, 4 welded steel housings, relays of various types, rectifiers, and transformers.

THE DEPARTMENT OF THE INTERIOR of the United States Government has let contracts covering the installation of centralized traffic control, as well as telegraph and telephone facilities, on the 30-mile relocation of the Southern Pacific around Shasta

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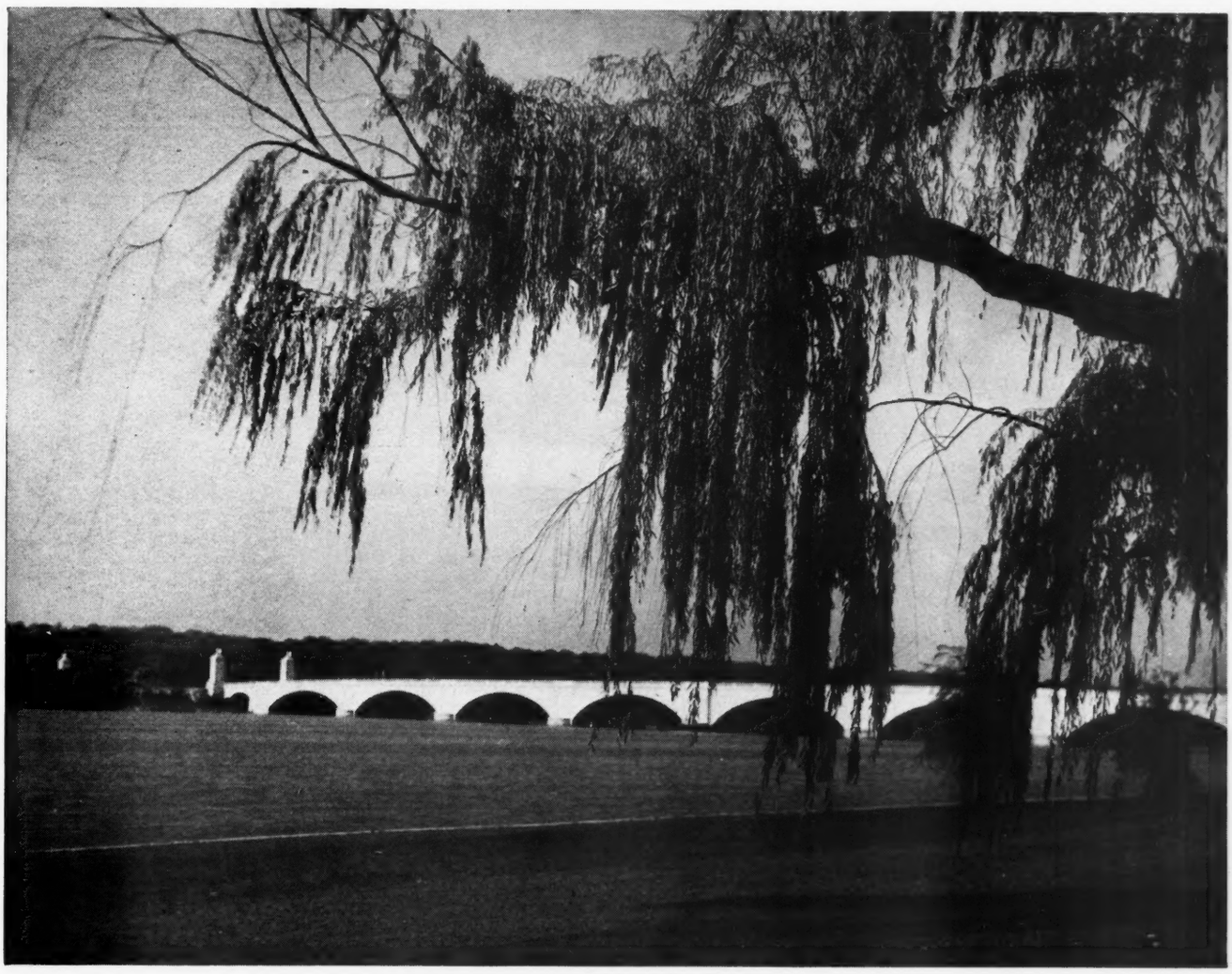
NO. 139 OF A SERIES OF FAMOUS ARCHES OF THE WORLD



THE ARLINGTON MEMORIAL BRIDGE

WASHINGTON, D. C.

The Arlington Memorial Bridge, spanning the Potomac from the Tidal Basin in Washington, D. C. to the Arlington Cemetery in Virginia, is a part of the building plans, inaugurated during George Washington's lifetime, to make the National Capital one of the world's most beautiful cities.

* * * * *

32 years ago the Security Sectional Arch was introduced to the railroads for the purpose of improving the combustion of the steam locomotive. Since then locomotives have vastly improved, but American Arch Engineers have kept pace with these improvements and today the Security Sectional Arch is standard on American Railroads. Only with a complete arch can you realize the true economies of your Arch. Check every locomotive before it leaves your roundhouse

There's More to SECURITY ARCHES *Than Just Brick*

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists

AMERICAN ARCH CO.
INCORPORATED
60 EAST 42nd STREET, NEW YORK, N. Y.
Locomotive Combustion Specialists

Dam and Reservoir on the Central Valley project in California. The C. T. C. system will include the relocated territory between Redding, Cal., 12 miles below Shasta Dam, and Delta station at the upper end of the reservoir area, and will be controlled from Dunsmiur, Cal. The contracts also call for the installation of highway grade crossing signals, fire-detector circuits on all bridges, slide-detector fences at cuts, and other equipment for the protection of trains on this line which necessitated the construction of 12 tunnels and 8 major bridges. The relocated line will be 7 mi. shorter than the present Sacramento River Canyon route between Redding and Delta, eliminating approximately 5,000 deg. of curvature, the equivalent to 14 complete circles.

Supply Trade

United States Steel Corporation Annual Report

Net income of the United States Steel Corporation amounted to $102,211,282 in 1940 compared with $41,119,934 in 1939. Significant comparisons follow:

	1940	1939
Gross Sales and Revenues	$1,145,607,886	$904,151,897
Cost of goods sold and oper. expenses of trans. and misc. operations	804,224,466	667,109,644
Balance	$341,383,420	$237,042,253
Other operating expenses	203,627,215	177,089,685
Operating Income	$137,756,205	$59,952,568
Other income and deductions (Net)	4,393,227	3,455,297
Interest on bonds and mtgs.	13,638,150	9,312,931
Provisions for federal income taxes	26,300,000	12,975,000
Net Income	$102,211,282	$41,119,934
Preferred stock dividends	25,219,677	25,219,677
Common stock dividends	34,813,008	.....
Surplus for Year	$42,178,597	$15,900,257

The demands of the war abroad and of armament at home did not, said Mr. Olds, chairman of the board of directors, "directly absorb the major portion of the corporation's 1940 steel output, but such tonnage, together with that indirectly required, added materially to the output of steel in the year. It is anticipated that increasingly large quantities of steel will be required, directly or indirectly, in connection with the war abroad and our national defense."

Stanley W. Hart, who has been handling industrial business for the **Glidden Company** in St. Louis, Mo., has been assigned to cover railroads in St. Louis.

W. W. Tomes has been appointed to head the Flow Meter section of the Appliance division of the **Cochrane Corporation** of Philadelphia, Pa.

Thomas A. Dooley has been appointed district manager in charge of the Madison, Wis. and St. Louis, Mo., car plants of the **American Car & Foundry Co.** which have been combined under the one management. **Norman H. Shipley** will act as assistant district manager of the Madison car plant.

The Modern Supply Company of Chicago, which is under the direction of **Robert E. Mann,** is moving its offices to 9 South Clinton street, Chicago.

Paul Helms has been appointed purchasing agent of the **Roller-Smith Company** of Bethlehem, Pa., to succeed **Harry A. Cassler,** who will retire April 1.

Gard G. Groce, formerly service manager of the Cleveland Tractor Company, has been appointed general service manager of the **Buda Company** of Harvey, Ill.

Construction of the **American Rolling Mill Company's** new $5,000,000 blast furnace, at the Ashland, Ky., division, began March 12, and is expected to be completed in about one year. Daily operation will require about 1,950 tons of ore, 935 tons of coke, 485 tons of limestone, 125 tons of mill scale and open hearth slag. Daily freight bill will be about $3,800. In 50-ton cars, these materials would fill an average of 70 railroad cars each day the year round. However, as the ore, which comes from the Lake Superior region, must be freighted across the Great Lakes when they are free from ice, the incoming tonnage will be much higher during that season, and is expected to reach 125 carloads a day. An ore yard of 450,000 tons' capacity will be provided as will a railroad storage yard capable of holding 200 cars.

M. A. Foss, service engineer of the **Locomotive Firebox Company,** Chicago, has been promoted to assistant vice-president, with headquarters in New York. He will assume the duties in the Eastern territory formerly performed by George

M. A. Foss

N. DeGuire, whose death on January 26 was reported in the *Railway Age* of February 1. Mr. Foss received his early training in the employ of the Bath Shipbuilding Company, Bath, Me., and was in charge of the boiler department of that company from 1917 to 1921. In the latter year, he became supervisor of boilers and maintenance of the New York, New Haven & Hartford, and in 1929 entered the employ of the Locomotive Firebox Company as service engineer.

Financial

Atchison, Topeka & Santa Fe.—*New Director.*—Richard W. Robbins, stockman, of Belvidere, Kan., has been elected a director. Mr. Robbins is a former president of Transcontinental & Western Air, Inc., and is chairman of the Kansas Industrial Development Commission and chairman of the executive committee of the Midwest Defense Conference.

Augusta Northern.—*Abandonment.*—This company has asked the Interstate Commerce Commission for authority to abandon a line extending from Saluda, S. C., to Ward, 11.2 miles.

Boston & Maine.—*Annual Report.*—The 1940 annual report of this road shows net income after interest and other charges of $1,152,197, as compared with a net income of $707,881 in 1939. Selected items from the income statement follow:

	1940	Increase or Decrease Compared with 1939
Railway Operating Revenues	$47,597,792	+$1,256,710
Maintenance of way and structures	5,802,585	+367,677
Maintenance of equipment	7,078,677	+182,752
Transportation	18,778,837	+577,685
Total Operating Expenses	34,257,992	+1,124,079
Operating ratio (per cent)	71.97	+.47
Net Revenue from Operations	13,339,800	+132,631
Railway tax accruals	3,661,054	+141,331
Railway operating income	9,678,746	−8,700
Net rents (payable)	2,743,505	+11,201
Net Railway Operating Income	6,935,242	−19,901
Total other income	1,160,221	−37,100
Total Income	8,095,463	−57,001
Rent for leased roads	1,245,006	+14,906
Interest on funded debt (fixed interest)	4,038,132	−1,290,653
Total Fixed Charges	5,838,127	−1,566,163
Net Income	1,152,197	+444,316
Disposition of net income: Income applied to sinking and other reserve funds	679,102	679,102
Income appropriated for investment in physical property	995,511	995,511
Total Appropriations of Income	1,674,613	1,674,613
Balance Transferred to Profit & Loss (Deficit)	$522,416	−$1,230,297

Chicago, Milwaukee, St. Paul & Pacific.—*Equipment Trust Certificates.*—Drexel & Co. and an associated group were awarded an issue of $3,120,000 of 2⅛ per cent equipment trust certificates, Series V, of this road on March 26, on a bid of 100.053. The certificates are due semi-annually on April 1 and October 1, 1941 to 1951, inclusive. The certificates were reoffered publicly at prices to yield 0.40 to 2.50 per cent, according to maturity.

Chicago, Milwaukee, St. Paul & Pacific.—*Equipment Trust Certificates.*—This company has asked the Interstate Commerce Commission for authority to

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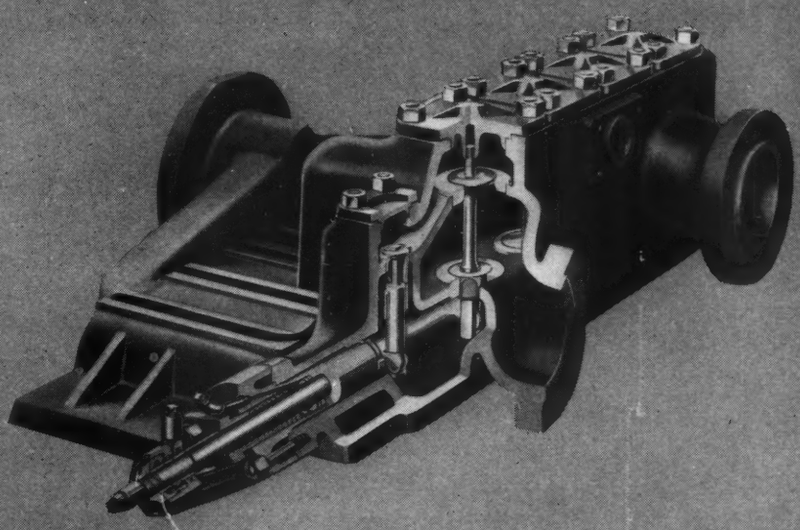
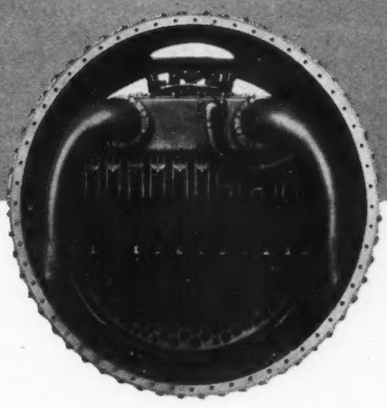
LEAKAGE POSSIBILITIES REDUCED



INSTALLATION PROBLEM MINIMIZED



. . . by Single Unit Throttle and Superheater Header

The American multiple-valve throttle is embodied within the superheater header which reduces leakage possibilities. When the superheater header is installed . . . the throttle is automatically installed. There is no installation problem.

This feature is one of the many advantages of the American throttle that make it today's "outstanding" throttle. Specify it for both modernization and new power.

American Throttle Co., Inc.

SALES REPRESENTATIVES:

THE SUPERHEATER COMPANY

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assume liability for $3,120,000 of equipment trust certificates, maturing either in 20 equal semi-annual installments of $156,000 on April 1 and October 1, in each of the years beginning October 1, 1941, and ending April 1, 1951, or in 30 equal semi-annual installments of $104,000 on April 1 and October 1, in each of the years beginning October 1, 1941, and ending April 1, 1956. The proceeds will be used as a part of the purchase price of new equipment costing a total of $4,160,000, and consisting of one 5,400 h. p. Diesel-electric locomotive for heavy high speed freight service; two 4,000 h. p. Diesel-electric locomotives for high speed passenger service; one 600 h. p. Diesel-electric locomotive for switching and light road service; two 1,000 h. p. Diesel-electric locomotives for switching and light road service; 10 360 h. p. Diesel-electric locomotives for switching and light road service; 500 50-ton, all-steel, wood-line box cars; 25 steel caboose cars; two tap-room cars; eight coaches; two coach-baggage cars; two dining cars; and six parlor cars.

DELAWARE & HUDSON.—*New directors.*—Paul Bedford of Wilkes-Barre, Pa., and Albert E. Cluett of Troy, N. Y., have been elected directors of this road to succeed the late G. W. McGarrah and G. W. Murray, resigned.

DELAWARE & HUDSON.—*Annual Report.*—The 1940 annual report of this road shows net income, after interest and other charges, of $762,430, a decrease of $830,593 compared with the 1939 figure. Selected items from the income account follow:

	1940	Increase or Decrease Compared with 1939
RAILWAY OPERATING REVENUES	$26,775,310	+$1,315,289
Maintenance of way and structures	2,789,542	+142,115
Maintenance of equipment	4,980,842	+621,358
Transportation	9,690,190	+604,276
TOTAL OPERATING EXPENSES	18,943,460	+1,346,232
Operating ratio	70.75	+1.63
NET REVENUE FROM OPERATIONS	7,831,850	−30,943
Railway tax accruals	1,812,780	−168,849
Equipment rents—Net	267,839	+26,626
Joint facility rents—Net	131,973	+5,546
NET RAILWAY OPERATING INCOME	5,619,258	+105,735
Non-operating income—Net	115,804	−5,779
GROSS INCOME	5,735,062	+99,956
Rent for leased roads	1,776,261	−4,167
Interest on funded debt	2,005,000	.....
TOTAL DEDUCTIONS FROM GROSS INCOME	4,972,632	+930,549
NET INCOME	$762,430	−$830,593

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Reorganization.*—Following the decision of the full commission last week in a similar case involving the Chicago & North Western, Division 4 of the Interstate Commerce Commission has denied a petition of the debtor company asking that it fix a maximum limit of allowance for expenses for its appeal to the United States Circuit Court of Appeals from a decision of the district court approving the commission's final plan of reorganization for this company under section 77 of the Bankruptcy Act. Details of the decision in the North Western case were given in the financial column of last week's issue. Although Commissioner Porter had dissented in the previous case, he concurred in this decision "out of deference to the holding of the entire commission" in the North Western case.

DULUTH, MISSABE & IRON RANGE.—*Annual Report.*—The 1940 annual report of this company shows net income after interest and other charges of $10,974,925, an increase of $4,450,856 as compared with net income in 1939. Selected items from the income statement follow:

	1940	Increase or Decrease Compared with 1939
RAILWAY OPERATING REVENUES	$27,554,684	+$8,918,005
Maintenance of way and structures*	2,361,148	+294,361
Maintenance of equipment	2,766,483	+189,424
Transportation	4,576,859	+1,065,334
TOTAL OPERATING EXPENSES*	10,156,937	+1,577,480
NET REVENUE FROM OPERATIONS*	17,397,747	+7,340,525
Railway tax accruals†	1,935,978	+550,884
Hire of equipment—Net Cr.	35,517	−16,330
Joint facility rents—Net Dr.	32,236	+1,678
NET RAILWAY OPERATING INCOME*	11,878,214	+4,501,935
Non-operating income	364,682	+27,976
GROSS INCOME*	12,242,896	+4,529,911
Rent for leased roads	419	+1
Interest on funded debt	1,041,294	−224
TOTAL FIXED CHARGES	1,060,722	+14,780
NET INCOME	$10,974,925	+$4,450,856

* Exclusive of loss on retirement or sale of road amounting to $151,453.23.
† Exclusive of Federal income tax.

FORT DODGE, DES MOINES & SOUTHERN.—*Reorganization Plan Approved.*—Division 4 of the Interstate Commerce Commission, with Commissioner Miller dissenting, has approved a final plan of reorganization for this company under section 77 of the Bankruptcy Act which would reduce the total capitalization from $10,162,791 to $3,672,500 and entirely eliminate the fixed charges. Under the approved plan the new capitalization would consist of $2,260,000 of income mortgage four per cent bonds, due in 1991, and $1,412,500 of common stock with a par value of $10 per share. The equities of the holders of both the common and preferred stock were found to have no value and they will not be allowed to participate in the plan.

Present holders of first mortgage bonds, including the United States as collateral holder of such bonds, will receive for each $1,000 bond, $400 of new income bonds and 25 shares of new $10 par value common stock, and their pro-rata share of free assets, taking the new stock at par. General creditors, including present holders of debentures, will receive their pro-rata share of the debtor's free assets, found by the court to consist of $299,050 of cash.

"The elements of value of this property," wrote Commissioner Miller in his dissenting opinion, "have not been introduced in this case. In fact, they have never been determined by our Bureau of Valuation. As I believe that valuation data must be taken into consideration in determining the allowable capitalization, I am unable to approve the total capitalization here authorized."

FONDA, JOHNSTOWN & GLOVERSVILLE.—*Annual Report.*—The 1940 annual report of this company shows a net deficit after interest and other charges of $86,827, as compared with a net deficit of $85,066 in 1939. Selected items from the income account follow:

	1940	Increase or Decrease Compared with 1939
RAILWAY OPERATING REVENUES	$502,088	−$2,825
TOTAL OPERATING EXPENSES	393,454	−6,970
NET REVENUE FROM OPERATIONS	108,634	+4,145
Taxes	36,608	−477
Railway operating income	72,026	+4,622
Net rents—Dr.	6,372	−1,170
NET RAILWAY OPERATING INCOME	65,654	+3,452
Other income	22,416	−10,057
TOTAL INCOME	88,070	−6,605
Rent for leased roads	6,908	+134
Interest on funded debt	137,820	.....
TOTAL FIXED CHARGES	150,311	−5,487
NET DEFICIT	$86,827	+$1,761

GULF, MOBILE & OHIO.—*Annual Report.*—The first annual report of this road shows net income for the new company (for the period from August 1 to December 31, 1940) of $312,445. Extracts from the comparative income account of the combined companies for the year 1940, compared with 1939, follow:

	1940	Increase or Decrease Compared with 1939
Average mileage operated	1,992.82	−11.56
RAILWAY OPERATING REVENUES	$18,701,182	+40,346
Maintenance of way	2,915,721	+191,665
Maintenance of equipment	3,092,250	−147,417
Transportation	6,062,286	141,906
TOTAL OPERATING EXPENSES	14,298,789	+436,044
NET REVENUE FROM OPERATIONS	4,402,394	−395,697
Railway tax accruals	1,541,370	+164,252
Railway operating income	2,861,024	−559,949
Net rents	1,355,499	+89,383
NET RAILWAY OPERATING INCOME	1,505,525	−649,332
Other income	109,345	−1,846
TOTAL INCOME	1,614,870	−651,177
Income available for fixed charges	$1,605,172	−$648,021

GULF, MOBILE & OHIO.—*Acquisition and Operation.*—This company has asked the Interstate Commerce Commission for authority to extend its lines and operate its trains from Mobile, Ala., to Farnell, 2.5 miles, by acquiring from the Mobile & Ohio

Continued on next left-hand page

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its abandoned Bay Shore branch extending between these two points.

LONG ISLAND.—*Annual Report.*—The 1940 annual report of this road shows net deficit, after interest and other charges, of $1,216,116, an increase of $1,024,012 over the 1939 deficit. Selected items from the income account follow:

	1940	Increase or Decrease Compared with 1939
RAILWAY OPERATING REVENUES	$25,229,208	−$535,138
Maintenance of way	2,469,547	+14,534
Maintenance of equipment	4,113,394	+47,670
Transportation	11,581,552	−286,481
TOTAL OPERATING EXPENSES	18,777,814	−178,911
Operating ratio	74.4	+0.8
NET REVENUE FROM OPERATIONS	6,451,395	−356,227
Railway tax accruals	3,963,691	+346,500
Railway operating income	2,487,703	−702,727
Hire of equipment —Dr.	673,196	+289,156
Joint facility rents —Dr.	1,056,620	−35,474
NET RAILWAY OPERATING INCOME	757,887	−956,409
Non-operating income	404,391	−42,764
GROSS INCOME	1,162,279	−999,173
Rent for leased roads	138,750	+78,750
Interest on funded debt	2,002,577	−23,983
TOTAL DEDUCTIONS FROM GROSS INCOME	2,378,394	+24,839
NET INCOME (Deficit)	$1,216,116	+$1,024,012

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*Reorganization Plan Filed.*—The trustees of this company have filed with the federal district court in Minneapolis and with the Interstate Commerce Commission a plan of reorganization under section 77 of the Bankruptcy Act which would create a new capital structure consisting of $2,663,829 of present equipment trust obligations to be assumed by the new company, $8,051,631 of four per cent first mortgage fixed interest bonds, $20,129,076 of four per cent general mortgage non-cumulative contingent interest bonds and 719,319 shares of no-par common stock.

The plan provides that payment of interest on the general mortgage bonds would be contingent upon earnings and subject to prior fixed charges and $250,000 per year for a capital fund to be set aside for improvements. Under the plan fixed interest bearing obligations would be reduced $120,052,333 and annual fixed interest charges would be reduced from the present $6,577,907 to $322,065. Total annual fixed and contingent interest charges of the new company, including the annual charges for the capital improvement fund, would be $1,432,080.

Holders of the present first consolidated mortgage bonds would get $38.77 in cash and $117.50 in new first mortgage bonds, $293.75 in new general mortgage bonds and 7.25 shares of no-par common stock for each $1,000 bond, except that holders of bonds with interest guaranteed by the Canadian Pacific would get $37.12 in cash, $112.50 in new first mortgage bonds, $281.25 in new general mortgage bonds, and 6.94 shares of common stock.

The plan also provides that holders of second mortgage bonds would receive 10 shares of common stock for each $1,000 bond; holders of first refunding mortgage bonds would receive 6.05 shares of common stock for series A bonds and five shares for series B bonds. In addition, holders of first refunding mortgage bonds would get their distributive shares of $10,000,000 of Wisconsin Central first and refunding mortgage bonds which are now pledged as collateral for the Soo first refunding bonds. Also included in the plan is a traffic agreement between the new company and the Canadian Pacific which provides that the latter would have the right to purchase 25 per cent of the stock of the new company allotted to others than the Canadian Pacific at $2 a share. This right would expire on December 31, 1950, but, if exercised prior to that date, the traffic agreement would be extended to December 31, 1958, and thereafter from year to year until cancelled by either party.

NEW YORK, CHICAGO & ST. LOUIS.—*Refunding of notes.*—This road has announced extension to April 30 of its plan of June 25, 1940, offering holders of outstanding 6 per cent unsecured notes 20 per cent in cash and the balance of their principal in new 6 per cent debentures, due 1950. Details of the plan appeared in the *Railway Age* of July 6, 1940, page 54.

The plan has been extended several times, the last deadline being March 31, 1941. The Chesapeake & Ohio, which holds $3,583,750 of the notes, has agreed to extend to April 28 its offer to accept new debentures for the full amount of its holdings provided public holders of not less than $8,000,000 of the notes accept the plan.

PEORIA & PEKIN UNION.—*Annual Report.*—The 1940 annual report of this road shows net income, after interest and other charges, of $7,829, as compared with a net income of $59,269 in 1939. Selected items from the income statement follow:

	1940	Increase or Decrease Compared with 1939
RAILWAY OPERATING REVENUES	$1,124,565	+$57,245
RAILWAY OPERATING EXPENSES	968,975	+90,423
NET REVENUE FROM OPERATIONS	155,590	−33,178
Railway tax accruals	140,298	−25,505
Railway operating income	15,292	−7,673
Net Rents	144,440	−43,727
NET RAILWAY OPERATING INCOME	159,732	−51,400
Total Other Income	15,147	−2,663
TOTAL INCOME	174,879	−54,063
Rent for leased roads and equipment	1,250	−250
Interest on funded debt (Fixed Interest)	161,107	−1,441
TOTAL FIXED CHARGES	165,521	−2,618
INCOME AFTER FIXED CHARGES	7,829	−51,440
Disposition of net income: Income Balance Transferred to Profit and Loss	$7,829	−$51,440

NEW YORK, NEW HAVEN & HARTFORD.—*Reorganization plan.*—The federal district court at New Haven, Conn., on March 11, set April 7 as the final date at which creditors of this road and subsidiaries may approve or disapprove the reorganization plan certified to the court by the Interstate Commerce Commission on February 26.

SEABOARD AIR LINE.—*Abandonment by the Raleigh & Charleston.*—The Raleigh & Charleston and the Seaboard Air Line would be authorized to abandon the former's entire line extending from Lake View, S. C., to South Marion, 19.9 miles, if Division 4 of the Interstate Commerce Commission adopts a proposed report of its Examiner R. Romero. Examiner Romero would make the authority subject to the condition that the companies would sell the line, or any part thereof, to any person or corporation offering within 60 days from the date of the certificate to purchase it for continued operation at a price not less than the fair net salvage value of the line.

SOUTHERN.—*Mobile & Ohio Stock Trust Certificates.*—The Appellate division of the New York State Supreme court has granted a stay against suits to force payment by the Southern of guaranteed dividends on Southern-Mobile & Ohio stock trust certificates, pending a court decision on the road's continuing liability therefor. Litigation referred to is an appeal by the Southern from a ruling of State Supreme Court Justice W. T. Collins of November 6, 1940, that the road's liability to pay 4 per cent dividends annually is unaffected by reorganization of the Mobile & Ohio and its merger with the Gulf, Mobile & Northern (see *Railway Age* for November 9, 1940, page 697).

The Appellate division granted the stay on condition that the railroad deposit $116,806 with J. P. Morgan & Co., before April 1, this sum representing the dividend due April 1 on 56,702 outstanding certificates, plus interest to October 1. According to the Southern's annual report for 1940, amounts to be deposited in trust pending court decision on the company's liability will be accrued in income account as a miscellaneous income charge.

SOUTHERN PACIFIC.—*Abandonment by the Pacific Electric.*—The Pacific Electric has asked the Interstate Commerce Commission for authority to abandon a branch line extending from Pomona Junction, Calif., to North Pomona, 1.4 miles.

UNION PACIFIC.—*New director.*—George E. Roosevelt has been elected a director of this road.

WESTERN MARYLAND.—*New director.*—John B. Ferguson, of Hagerstown, Md., was elected a director of this road at the annual meeting of stockholders on March 19. Stockholders also approved a change in the annual meeting date from the third Wednesday in March to the third Wednesday in April, effective next year.

Dividends Declared

St. Joseph, South Bend & Southern.—75¢; 5 Per Cent Preferred, $2.50, semi-annually, both payable March 20 to holders of record March 10.

Average Prices of Stocks and Bonds

	Mar. 26	Last week	Last year
Average price of 20 representative railway stocks..	29.62	29.26	30.93
Average price of 20 representative railway bonds..	64.41	64.10	58.93

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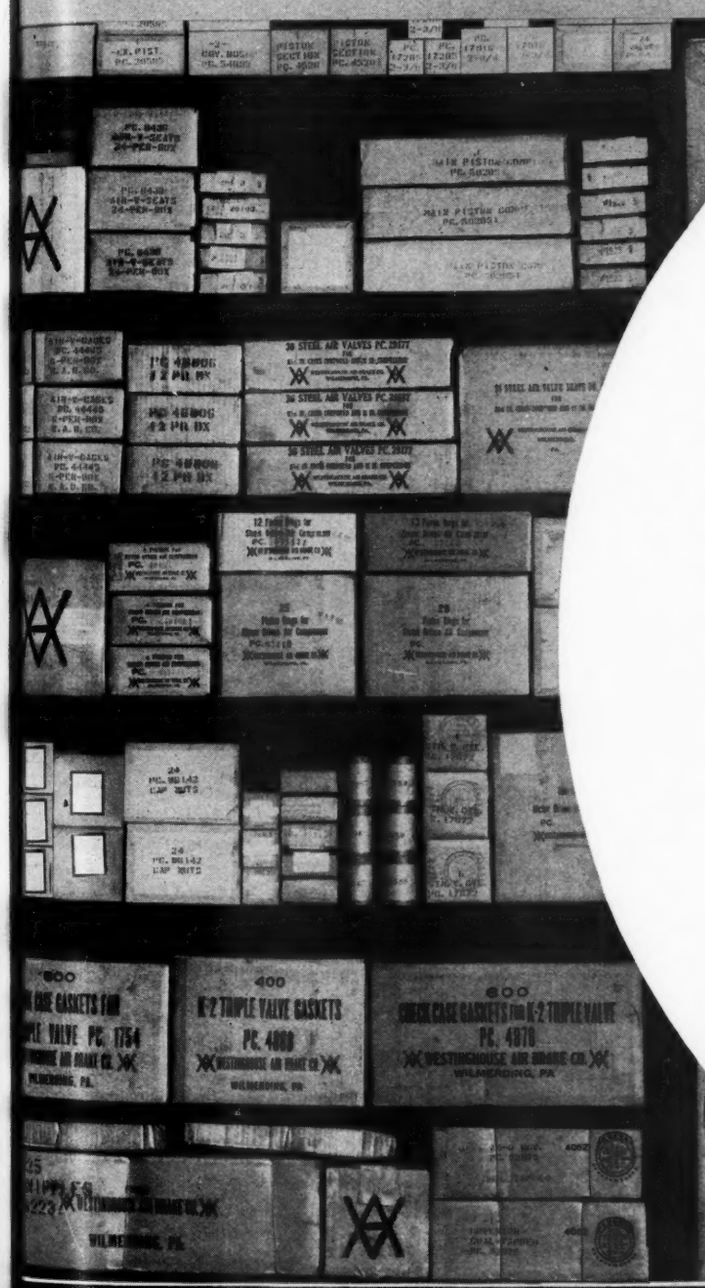

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Railway Officers

EXECUTIVE

Jervis Langdon, Jr., general attorney for the Chesapeake & Ohio Lines, with headquarters at Cleveland, Ohio, has been promoted, effective April 1, to assistant vice-president traffic of the Chesapeake & Ohio and the Pere Marquette, a newly created position, with the same headquarters. Mr. Langdon was born on January

Jervis Langdon, Jr.

28, 1905, at Elmira, N. Y., attended Hill School, Pottstown, Pa., Dijon University, Dijon, France, and Cornell University, from which he was graduated in 1927. He entered railroad service in November, 1927, with the Lehigh Valley, as a clerk in the traffic department, leaving in 1928 to enter Cornell Law School. After graduation from Cornell in 1931, Mr. Langdon returned to the Lehigh Valley as a law clerk, becoming successively attorney and assistant general solicitor. In 1934 he was appointed commerce counsel of the New York Central System at New York. In October, 1936, Mr. Langdon was appointed assistant general attorney of the Chesapeake & Ohio and in March, 1938, he became a general attorney for that road, the Pere Marquette and the Nickel Plate.

FINANCIAL, LEGAL AND ACCOUNTING

At a meeting of the board of directors of the Richmond, Fredericksburg & Potomac on March 20, **H. S. Wood** was elected assistant treasurer, in addition to his position as secretary of the company.

Guadalupe Estrada has been appointed general treasurer of the National Railways of Mexico, a post that has been vacant since May 1, 1938. His headquarters will be at Mexico City.

John J. Fitzpatrick, assistant general attorney on the Baltimore & Ohio at Baltimore, Md., has been appointed, effective April 1, general attorney on the Chesapeake & Ohio Lines, including the Pere Marquette and the New York, Chicago & St. Louis (Nickel Plate), with headquarters at Cleveland, Ohio, succeeding **Jervis Langdon, Jr.,** whose promotion to assistant vice-president traffic of the C. & O. and the Pere Marquette, is reported elsewhere in these columns.

OPERATING

A. M. Harris, supervisor of track on the Pittsburgh division of the Pennsylvania, with headquarters at Johnstown, Pa., has been promoted to assistant superintendent of freight transportation of the Western region, a newly-created position, with headquarters at Chicago.

William A. J. Carter, dispatcher on the Gulf, Colorado & Santa Fe at Ft. Worth, Tex., has been promoted to trainmaster at Beaumont, Tex., succeeding **Charles S. Neal,** who has been transferred to Temple, Tex., relieving **M. R. Tarrant,** who has retired.

TRAFFIC

G. P. Sauerwein has been appointed coal freight agent of the Baltimore & Ohio, with headquarters at Baltimore, Md., to succeed **S. I. Thompson,** who has been promoted to general coal freight agent.

W. J. Melvin, assistant to chief special agent of the Chesapeake & Ohio, has been appointed assistant chief special agent, with headquarters at Richmond, Va. **A. H. O'Meara,** chief claim prevention agent, has been appointed assistant freight claim agent at Richmond. These appointments became effective March 17.

A. C. Ritter, general agent for the Union Pacific at Santa Ana, Cal., has been appointed industrial agent at Los Angeles, Cal., replacing **William E. Rauch,** whose death on February 24 was announced in the *Railway Age* of March 8. **Walter Dittmer,** passenger and freight traffic agent at Pomona, Cal., has been promoted to general agent at Santa Ana, succeeding Mr. Ritter.

A. I. Hoskins, assistant to the vice-president in charge of system freight traffic of the Southern Pacific, has been appointed assistant general freight agent, a newly created position, with headquarters as before at San Francisco, Cal. **P. P. Dougherty,** district freight agent at San Francisco, has been promoted to assistant general freight agent, with the same headquarters, succeeding **C. M. Biggs,** whose promotion to general freight agent, with headquarters at Los Angeles, Cal., was announced in the *Railway Age* of March 8.

MECHANICAL

F. E. Cheshire, general car inspector of the Missouri Pacific, has been promoted to the newly created position of assistant superintendent of the car department of the Missouri Pacific Lines. Mr. Cheshire is a vice-president of the Car Department Officers' Association.

W. A. Newman, general foreman on the Chicago, Burlington & Quincy at Denver, Colo., has been promoted to assistant superintendent of shops, a newly created position, with headquarters at West Burlington, Iowa.

SPECIAL

Dr. H. Eugene Allen, district surgeon for the Chicago, Milwaukee, St. Paul & Pacific at Seattle, Wash., has been appointed chief surgeon of the Western lines, with the same headquarters, succeeding **Dr. A. I. Bouffleur,** who will retire on April 1, after 51 years service.

OBITUARY

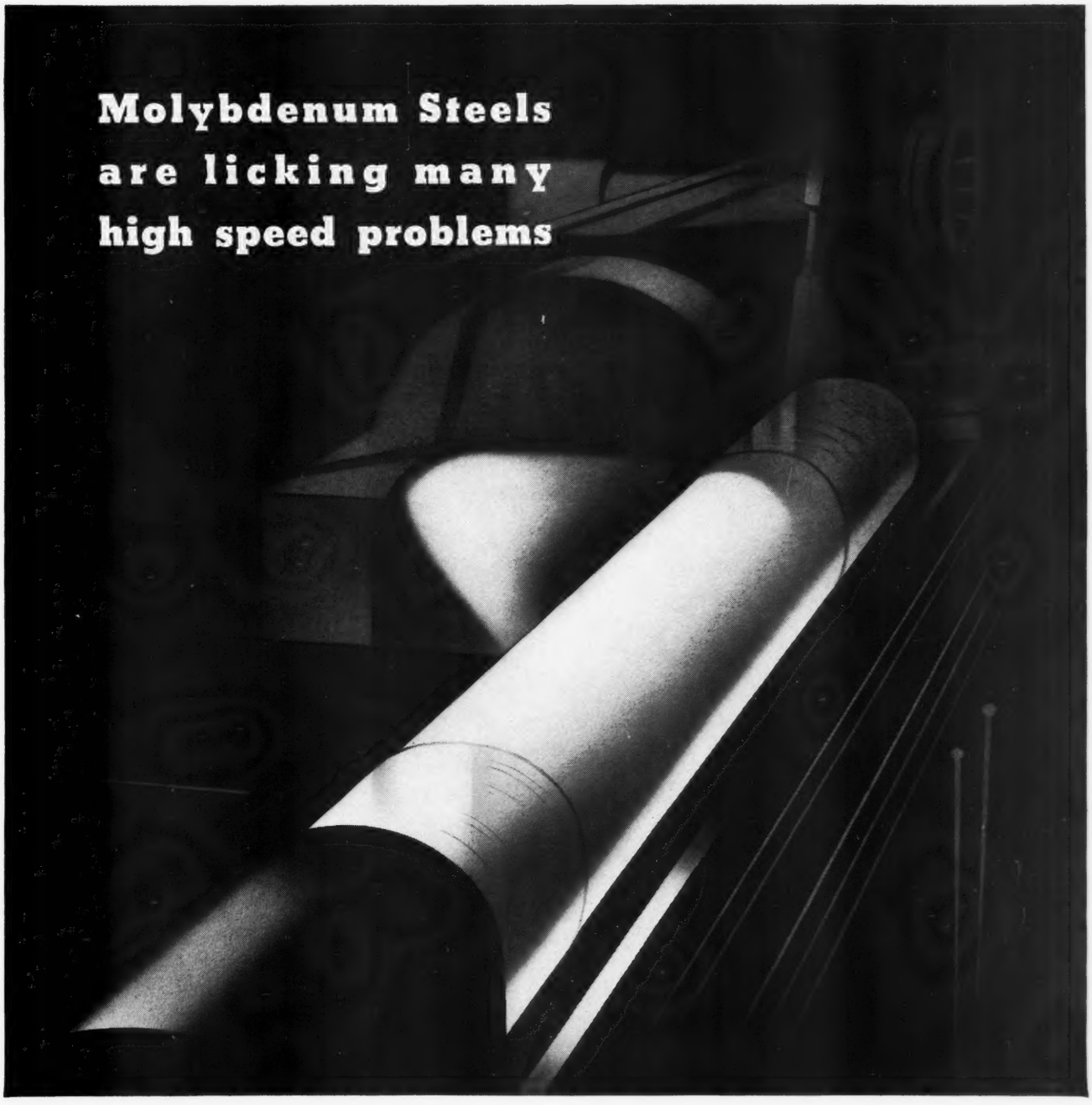
Arthur L. Hocking, assistant general freight agent of the Central of New Jersey, with headquarters at New York, died at his home in Wharton, N. J., on March 19, at the age of 40.

Herman J. Pfeiffer, consulting engineer, and until February 17, chief engineer of the Terminal Railroad Association of St. Louis, died in that city on March 16, after a six months' illness.

Custis Waples Woolford, former secretary of the Baltimore & Ohio, died on March 21 at his home in Baltimore, Md., after a brief illness, in his 82nd year. Mr. Woolford retired on January 30, 1929, after 55 years with this road.

E. R. Scoville, former assistant superintendent of safety of the Baltimore & Ohio, died at his home in Baltimore, Md., on March 24, after a long illness, at the age of 82. Mr. Scoville retired from active service on December 31, 1938, after 58 years of continuous service with the Baltimore & Ohio.

Fred C. Fox, who retired in 1927 as general manager of the Eastern lines of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., died in the Tri-State Sanitarium at Shreveport, La., on March 24. Mr. Fox was born in Marysville, Ohio, on October 9, 1863, and entered railway service at the age of 16 as a telegraph operator on the Cleveland, Columbus, Cincinnati & Indianapolis (now the Cleveland, Cincinnati, Chicago & St. Louis). On July 4, 1881, he became a telegraph operator on the Santa Fe, advancing successively during the period until September, 1889, to freight and ticket agent and trick dispatcher. Mr. Fox was then promoted to chief train dispatcher, becoming trainmaster in 1892 and superintendent in 1900, in which position he served at Las Vegas, N. M., and Newton, Kan. From 1905 to 1910, he was general superintendent of the Western Grand division and Eastern Grand division successively. On October 1, 1910, he became general manager of the Western lines, at Amarillo, Tex., and continued in that capacity until September 7, 1916, when he was sent to Topeka, Kan., as general manager of the Eastern lines. He held this position until his retirement.



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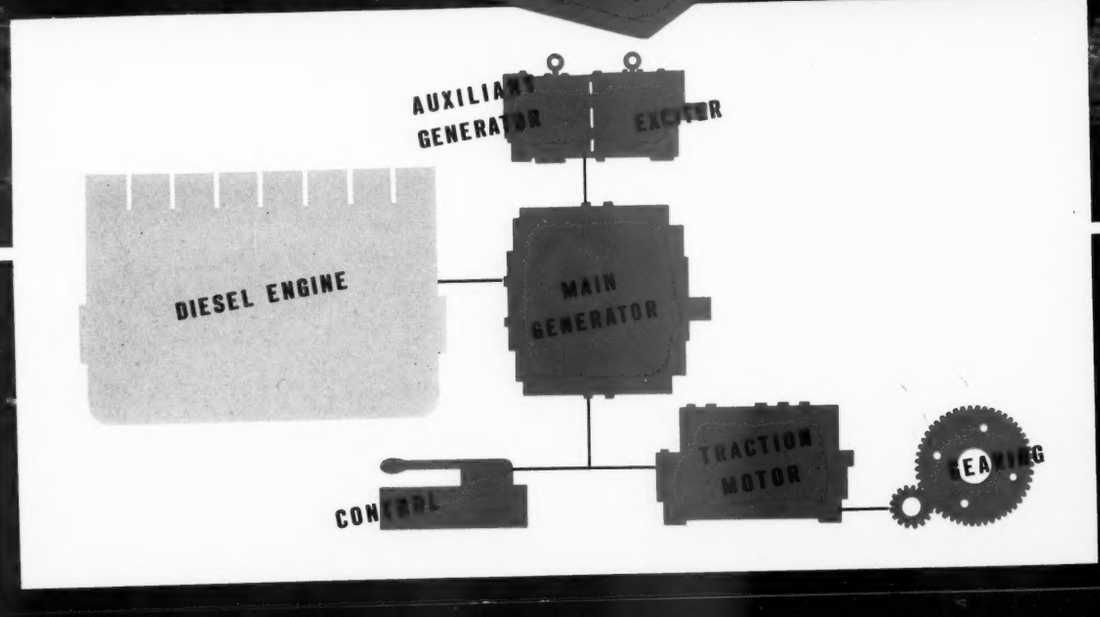

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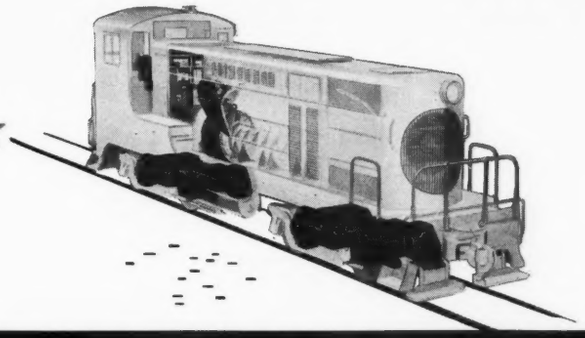

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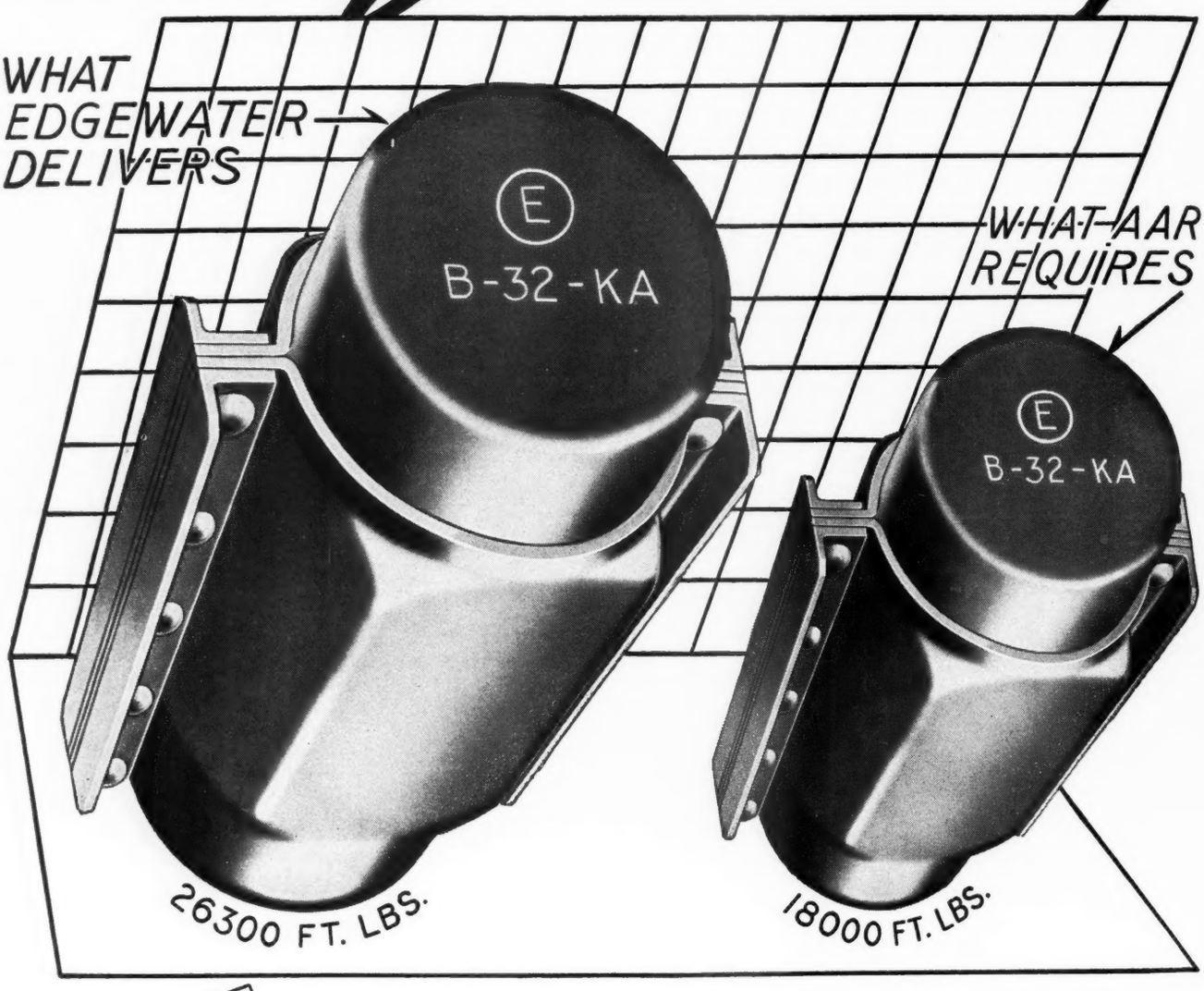

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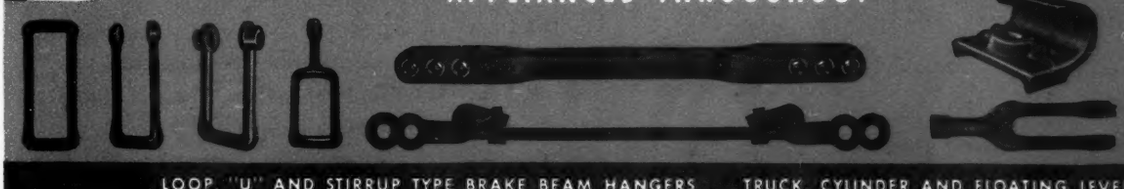
Because the width of the eyes has been increased so that their bearing area against the pin is equal to the bearing area of the cross member within the brake head slot, Schaefer "Balanced-Wear" Brake Beam Hangers effect the same balance of wear as loop hangers—therefore, enjoy longer life in service.

FOR LOWEST FOUNDATION BRAKE GEAR MAINTENANCE, SPECIFY

SCHAEFER

APPLIANCES THROUGHOUT



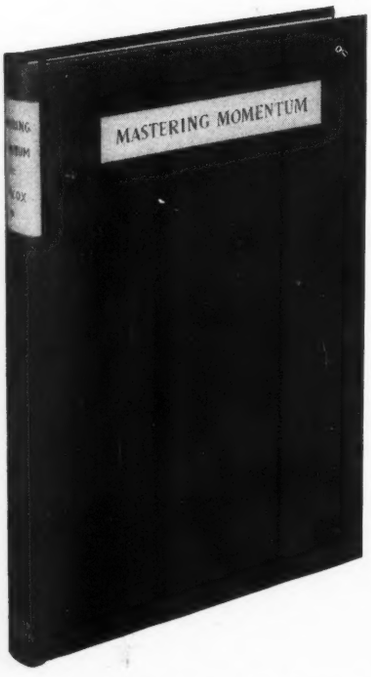
LOOP, "U" AND STIRRUP TYPE BRAKE BEAM HANGERS . TRUCK, CYLINDER AND FLOATING LEVERS
TRUCK LEVER CONNECTIONS . BRAKE ROD JAWS . WEAR PLATES . BRAKE SHOE KEYS

Just Published . . .

MASTERING MOMENTUM

By Lewis K. Sillcox

First Vice-President, The New York Air Brake Company



A basic book discussing modern transport trends and their influence upon the equipment of American railroads. It is based upon a series of lectures delivered at the Massachusetts Institute of Technology, revised and completely illustrated.

The theory and practice of train braking is thoroughly discussed, supported by worked examples illustrative of typical procedure in train retardation calculations. The author explains the features of high-speed train operation which have been responsible for such innovations in braking as electro-pneumatic combinations, automatic rail sanding, retardation control, and wheel slide detectors in passenger service; and delayed emergency, rapid quick service propagation and positive release of freight car brakes.

The influence of heavy, sustained braking upon wheel and car truck design is discussed, together with an explanation of the responsibility of high braking temperatures upon the shelling and thermal cracking of steel wheels. Spring suspension systems, dynamic effects upon riding qualities, track stresses, and weight transfer tendencies are analyzed. Draft gear design and its relation to shock absorption and the running stability of freight and passenger cars are investigated.

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Gentlemen: Please send me a copy of MASTERING MOMENTUM on 10 days' approval. If satisfied, I will remit the list price of $2.50; otherwise I will return the book postpaid.

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Author a Recognized Authority

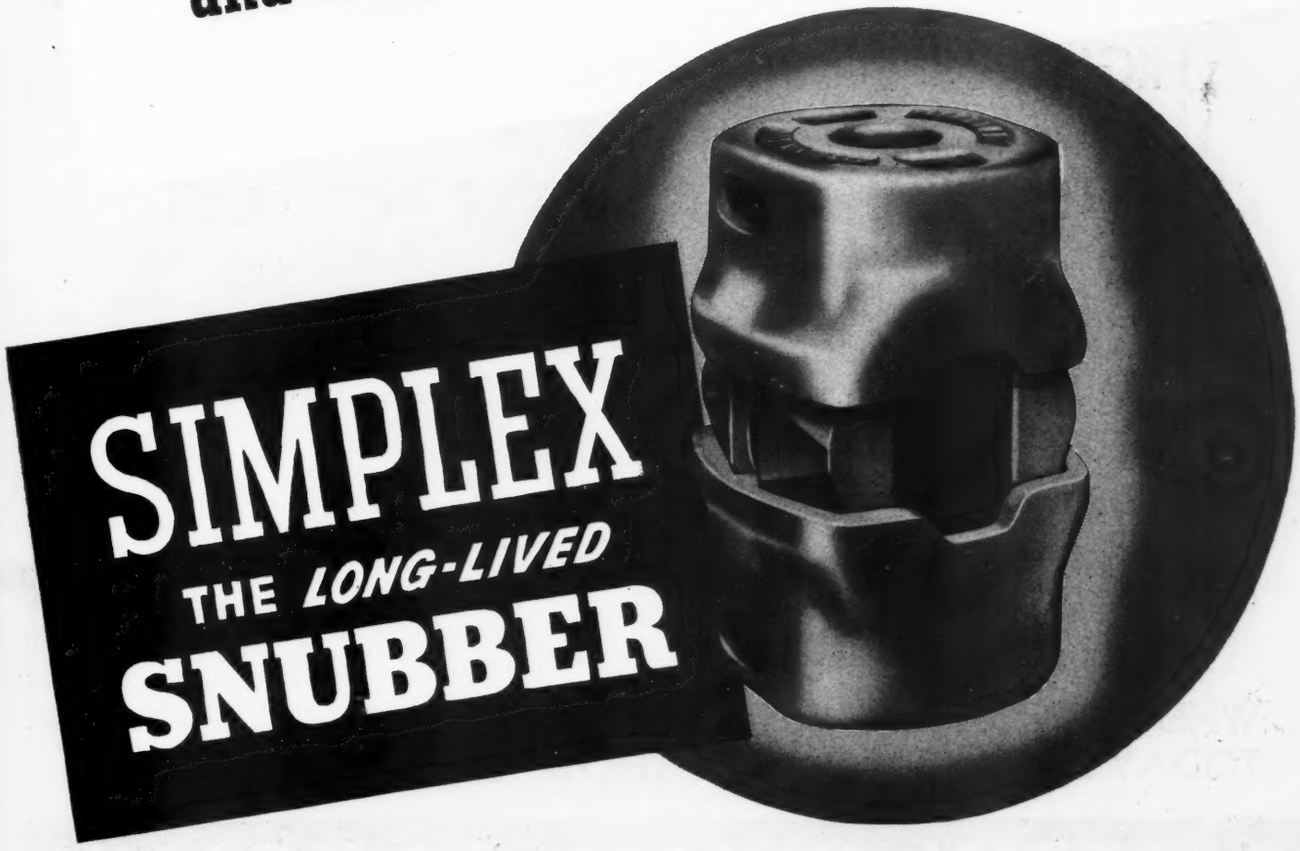
One time General Superintendent of Motive Power on the Chicago, Milwaukee, St. Paul and Pacific Railroad, the author was Chairman of the Mechanical Division of the Association of American Railroads. The author also served as Chairman of the Mechanical Advisory Committee to the Federal Coordinator of Railroads. An accepted authority on locomotive and car design, his immediate association with the air brake industry provides unusual qualifications for the discussion of the subjects which he has selected.

Contents

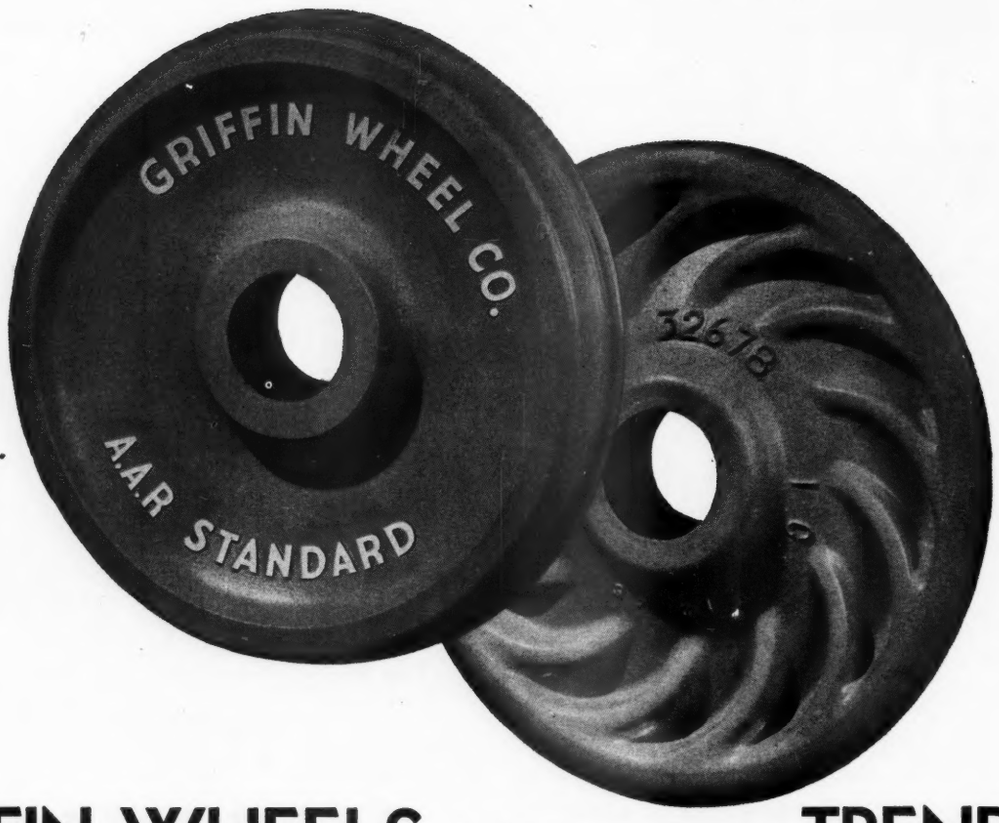
The Mechanics of Train Operation and Train Braking—Railway Car Wheels—Railway Car Axles—Locomotive and Car Truck Design—Rail Reactions and Riding Qualities—Draft Gear—Conclusion.

1941. 275 pages, 130 illus., 6 x 9, cloth, $2.50

Open top cars may not damage lading but they will pile up car maintenance costs. SIMPLEX SNUBBERS reduce these costs and keep cars off the repair track



AMERICAN STEEL FOUNDRIES



» GRIFFIN WHEELS AHEAD OF THE TREND »

HIGHER SPEEDS AND HEAVIER LOADS
OVERTAKEN BY
BETTER WHEELS AT LOWER NET COST

FACTS

1. WHEEL LIFE - 50% GREATER IN 1940 THAN *IN 1930.* PROVED BY RECENT SURVEYS.
2. GUARANTEED SERVICE MORE THAN DOUBLED. 1940 GUARANTEE 10 YEARS FOR 50 TON CAPACITY CARS —1930 GUARANTEE 4 YEARS.

WHEN CONSIDERING WHEELS FOR NEW EQUIPMENT CHECK TODAY'S RECORDS — NOT THOSE OF 10 YEARS AGO.

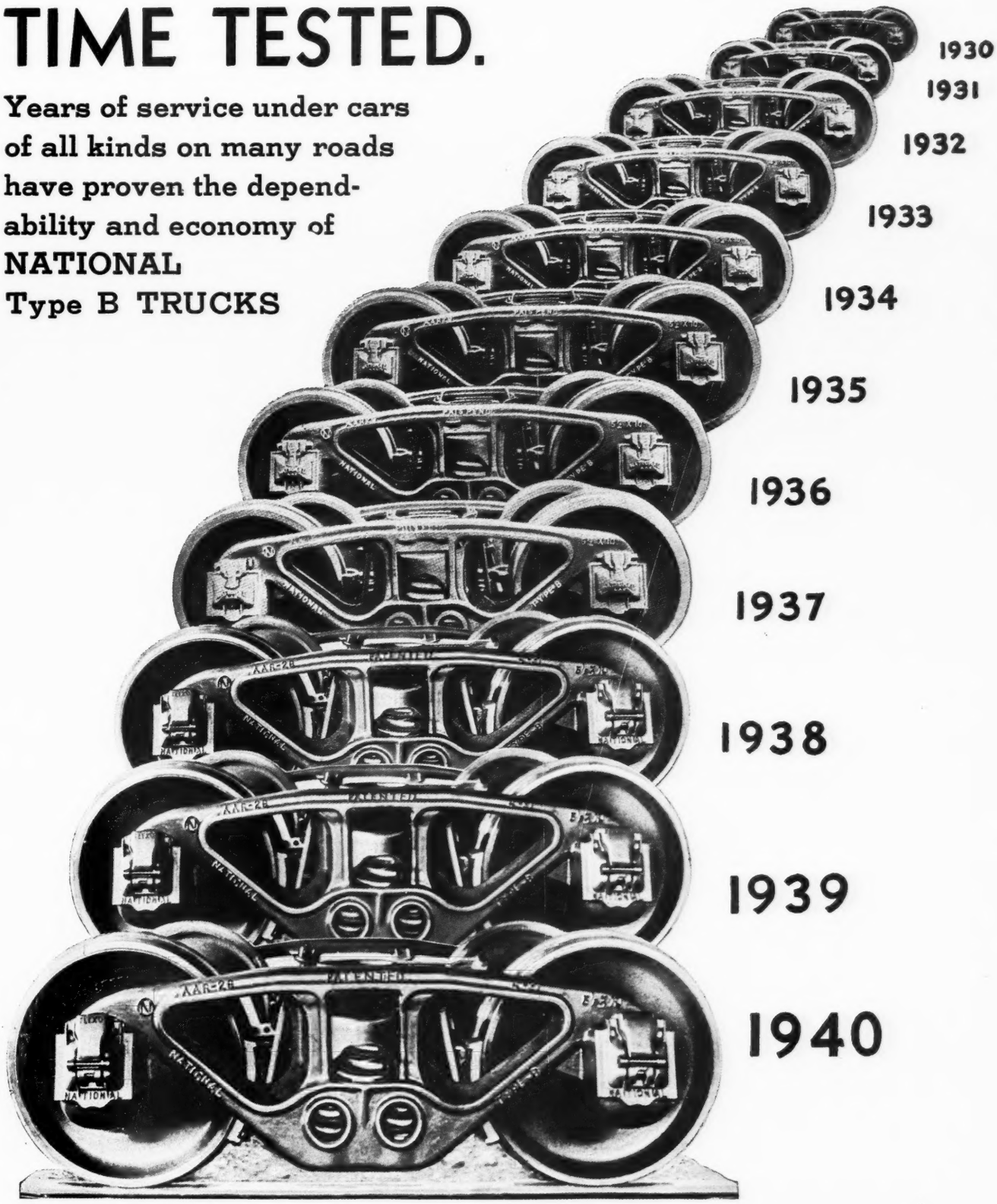
GRIFFIN WHEEL COMPANY

410 NORTH MICHIGAN AVE., CHICAGO, ILL.

PLANTS Chicago, Detroit; Boston, Cleveland; Cincinnati, St. Paul; Kansas City, Council Bluffs; Denver, Salt Lake City; Los Angeles, Tacoma

TIME TESTED.

Years of service under cars of all kinds on many roads have proven the dependability and economy of NATIONAL Type B TRUCKS



National Type B Trucks comply with all A.A.R. requirements

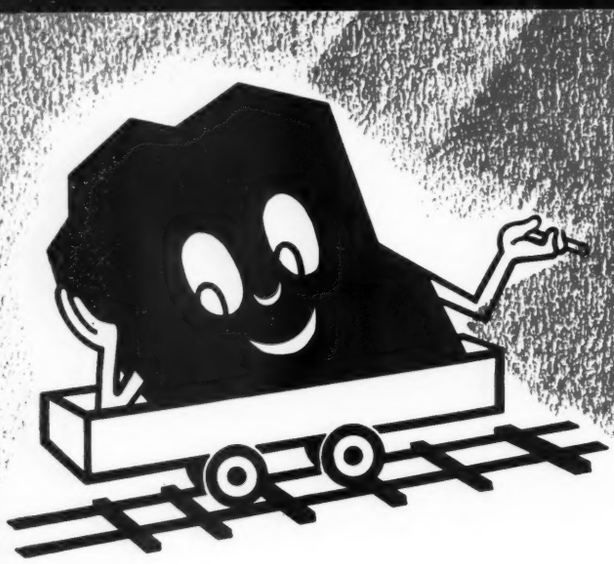
NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco

Works, Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

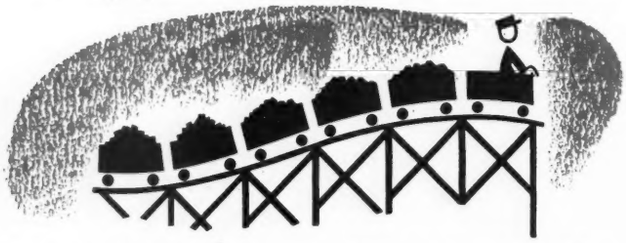
Canadian Representatives: Railway and Power Engineering Corporation, Ltd., Toronto and Montreal



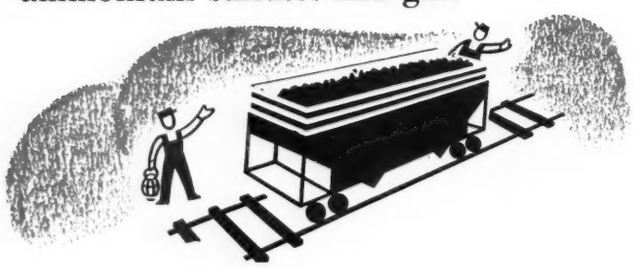
JUST A LUMP OF COAL LYING IN A MINE CAR

But I'm going to see a lot of railroading before my travels are done

Here I start. Up to the tipple in my ACF built mine car, through the tipple and cleaning plant, and right smack into an

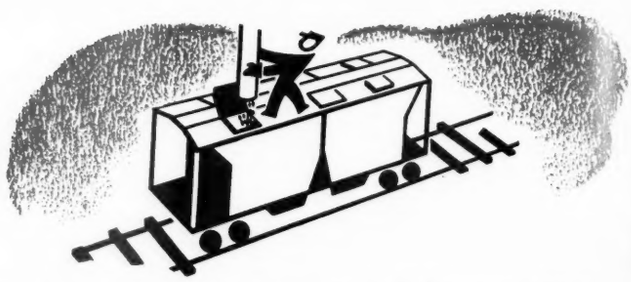


ACF built coal car! On this particular trip the next thing I know I'm going through the coking ovens—and coming out as coke, crude light oils, refined tar, ammonium sulfate, and gas.

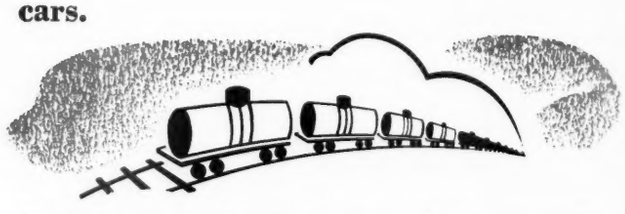


Now no single type car can hold me. I demand service—and I certainly do get it from these railroads. The newest type

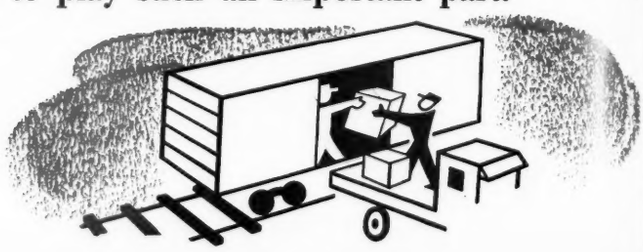
of ACF coke rack cars run my coke down to the foundries. A fleet of ACF designed and built tank cars rolls up for my crude light oils and refined tars, and



off they go to a score of different destinations. My ammonium sulfate shoots into ACF designed and built covered hopper cars, where it is perfectly protected for its trip to the farming districts. Compressed into steel cylinders, my gas sets off to the industries in ACF built gondolas, box cars, and multi-unit tank cars.



And that's only the start of my travels—travels which let me play a thousand roles in the world's work. Travels which could never have been possible, save for the tremendously efficient and specialized service rendered by the railroads today. A service in which ACF is proud to play such an important part.



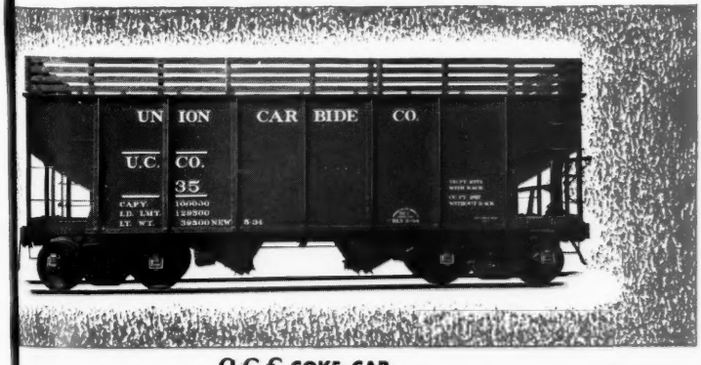
A.C.F. ROTARY DUMP MINE CAR

The American Car and Foundry Company is not only one of the greatest builders of railroad rolling stock, it also builds a wide variety of industrial cars and car wheels, and is, in fact, the country's largest builder of mine cars. A substantial part of the nation's coal actually starts upon its travels in A.C.F. built mine cars, and there is scarcely a ton mined anywhere that does not make use of one, or more, of the varied types of A.C.F. rolling stock before its many journeys are finished.

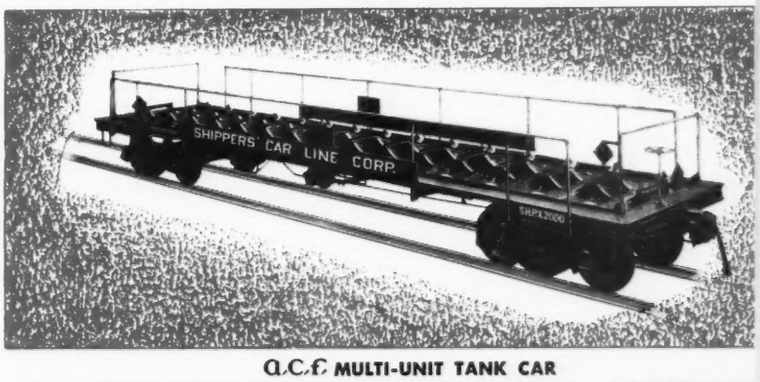
The increasing specialization of our country's industry and technology calls for corresponding developments in transportation. A great part of the efforts of the American Car and Foundry Company is directed toward the creation of new and improved types of rolling stock designed and built to meet the bulk transportation demands for the ever-increasing new synthetic products; and to decrease operating and maintenance costs, reduce damage claims, and afford better service to shippers.

A.C.F. WELDED-RIVETED HOPPER CAR

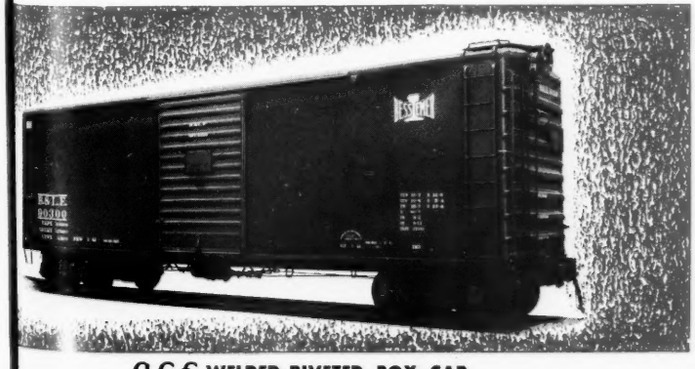
A.C.F. SINGLE COMPARTMENT TANK CAR



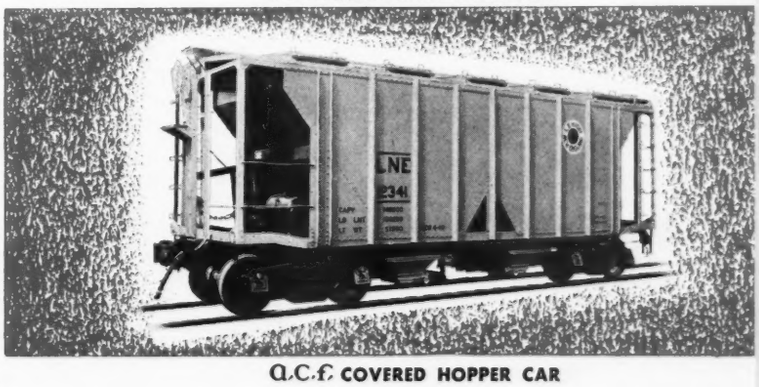
A.C.F. COKE CAR



A.C.F. MULTI-UNIT TANK CAR



A.C.F. WELDED-RIVETED BOX CAR



A.C.F. COVERED HOPPER CAR

AMERICAN CAR AND FOUNDRY COMPANY

NEW YORK CHICAGO PITTSBURGH ST. LOUIS ST. PAUL CLEVELAND SAN FRANCISCO PHILADELPHIA

5 NEW INTERNATIONAL Industrial WHEEL Tractors

• Here are International Harvester's latest products for the men who use industrial power—five *brand-new* International Industrial WHEEL Tractors. These "I" Tractors, added to the line of International TracTracTors and Power Units announced in 1940, make *standardization* on International Industrial Power *more profitable than ever.*

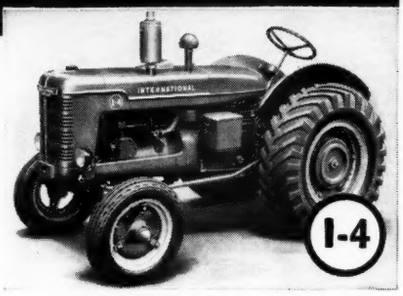
Three of these new "I" models have carburetor-type engines—two have International quick, easy-starting, *full* Diesel engines. They are streamlined, efficient, economical—ready to cut costs to the bone on a wide variety of jobs.

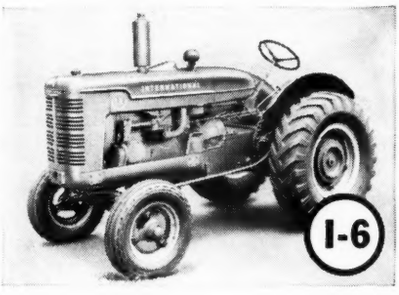
Contractors, counties and townships, cities and villages, airports, parks, cemeteries, golf courses, railroads, public utilities, factories, lumber and building supply yards, etc., will find these new Internationals useful, handy, and economical on a wide variety of construction, maintenance, materials-handling, and transportation work.

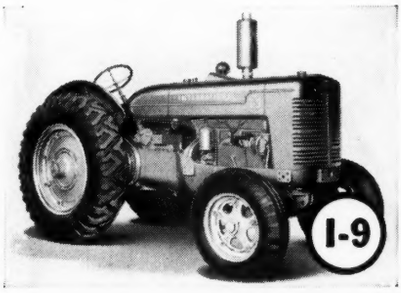
All these tractors have Tocco-hardened crankshafts, pressure lubrication, replaceable cylinders, five forward speeds up to 15 m.p.h., gear drive, countershaft brakes that can be individually controlled or interlocked, provision for mounting a variety of allied equipment, and many other features.

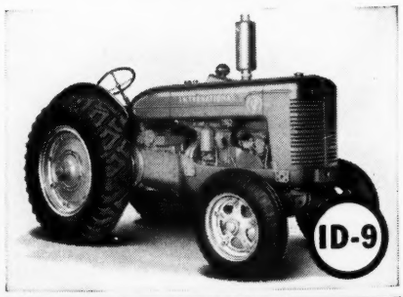
See these tractors at first hand. Watch them perform on the job. Ask the nearest International Industrial Power dealer or Company-owned branch for full information.

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue, Chicago, Illinois









"I" Tractor Facts

I-4—4-cylinder valve-in-head gasoline engine. Bore and stroke 3⅜ x 4¼ in. 5 forward speeds up to 15 m.p.h. Develops 29.5 engine h.p. at 1,650 r.p.m.

I-6—4-cylinder, valve-in-head gasoline engine. Bore and stroke 3⅞ x 5¼ in. 5 forward speeds up to 14 m.p.h. Develops 40.5 engine h.p. at 1,450 r.p.m.

ID-6 DIESEL—Quick-starting, 4-cylinder, compression-ignition, 4-cycle Diesel engine. Bore and stroke 3⅞ x 5¼ in. 5 forward speeds up to 14 m.p.h. Develops 38.5 engine h.p. at 1,450 r.p.m.

I-9—4-cylinder, valve-in-head gasoline engine. Bore and stroke 4.4 x 5.5 in. 5 forward speeds up to 15 m.p.h. Develops 54 engine h.p. at 1,500 r.p.m.

ID-9 DIESEL—Quick-starting, 4-cylinder, compression-ignition, 4-cycle Diesel engine. Bore and stroke 4.4 x 5.5 in. 5 forward speeds up to 15 m.p.h. Develops 51.5 engine h.p. at 1,500 r.p.m.

"I" Tractor Applications for Railroads, Warehouses, Docks, Terminals, Stockyards, etc.

Railroads, warehouses, terminals, etc., will find the new International WHEEL Tractors useful for switching and spotting cars, pulling trailer-trains, handling materials, snow removal, and powering cranes and hoists.

INTERNATIONAL Industrial Power

The "AB" BRAKE

Increases Operating Economies in Proportion to Scope of Application

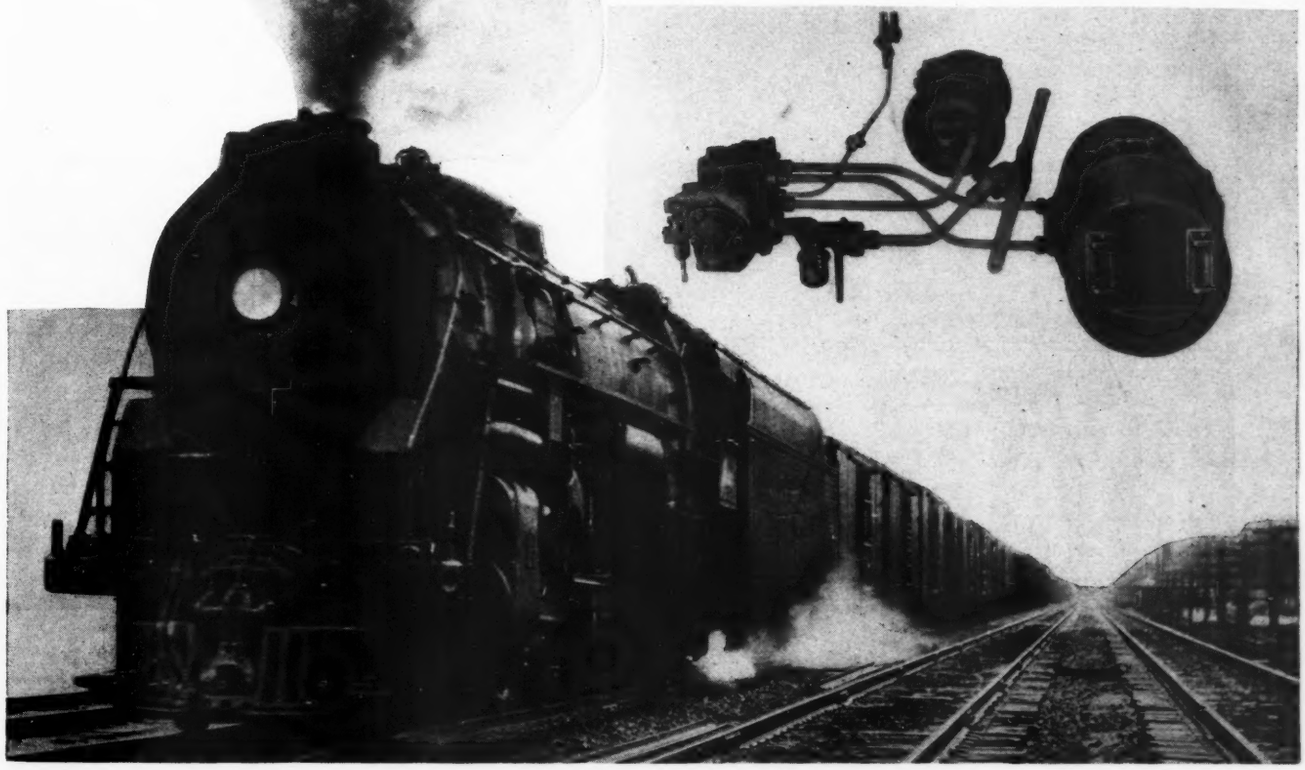
RAILWAY mechanical officers responsible for maintenance of rolling stock have upon numerous occasions stressed the fact that the percentage of "AB" equipped cars is not great enough to insure full benefits.

These benefits include positive application and assurance of release with minimum service reductions, the ability to obtain a prompt emergency application following a substantial service application or release and a prompt release following an emergency application.

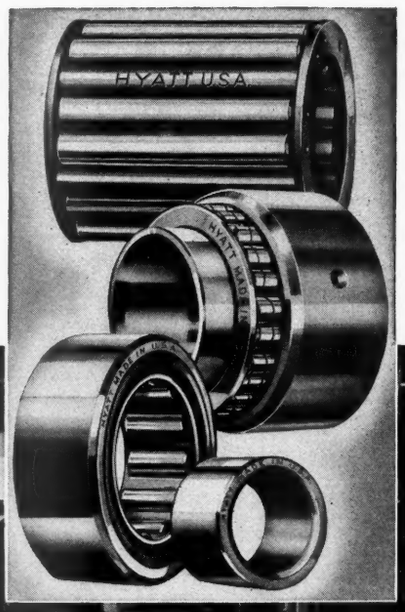
All of these retardation features are vitally essential to modern freight train operation—especially insofar as speeds, tonnage and maintenance of equipment are concerned. The greater the number of "AB" Brakes in service, the greater the flexibility of control and resulting operating economies.

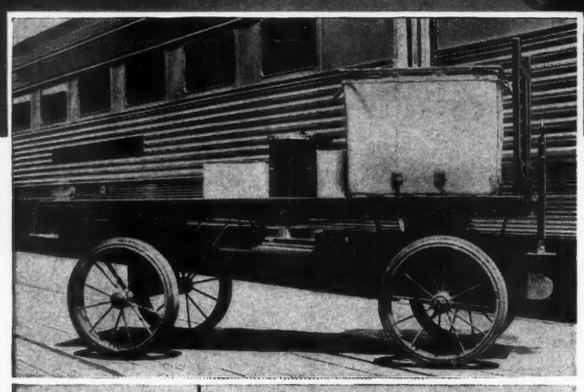
The New York Air Brake Company

420 Lexington Ave., New York City **Plant: Watertown, New York**



RECIPE for Longer Equipment Life...





Pictured above MERCURY TRAILERS • Baggage Truck with FRENCH & HECHT Wheels • FAIRMONT Inspection Car.

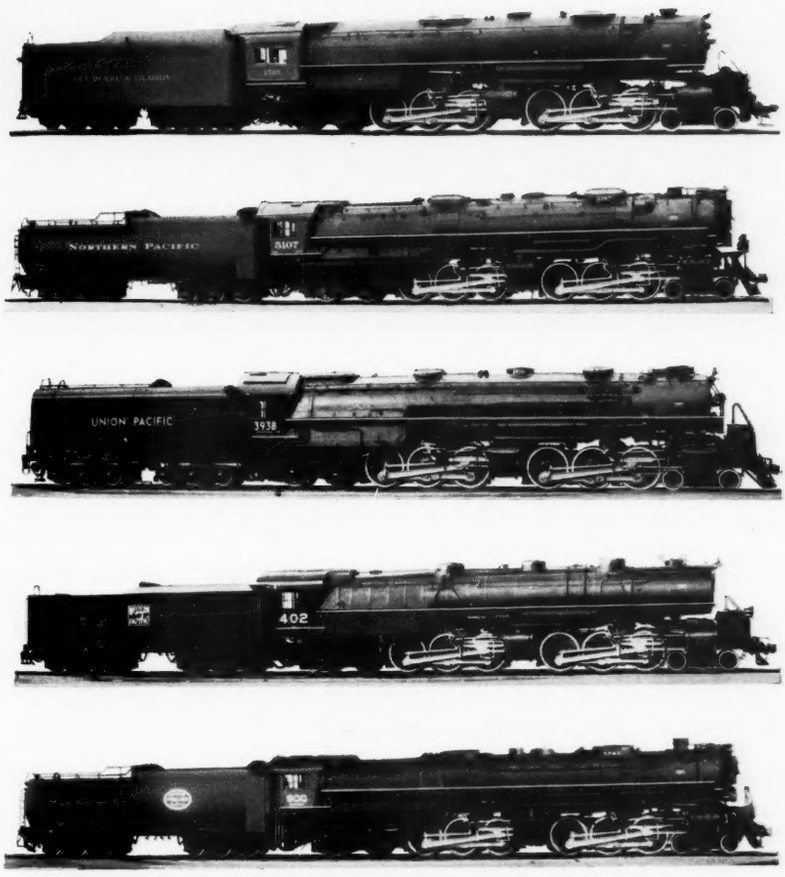
TO HELP KEEP bearing wear and care out, always look for Hyatts in the equipment you buy. Trailers, lift trucks, hand trucks, baggage cars, section cars, cranes and hoists are regularly built with Hyatts ... the same make of dependable bearings which are giving such high mileage in journal box applications. Hyatt Bearings Division, General Motors Sales Corporation, Harrison, N. J., Detroit, Pittsburgh, Chicago, San Francisco.

HYATT

ROLLER BEARINGS

QUIET

"Railway" Springs



For the BIG FELLOWS

MODERN high-powered locomotives hauling heavy freights at high speeds require regular "he-man" springs to cushion the stresses between locomotive and track. Smooth easy riding is possible only when high quality springs of correct design and resiliency are used all around—on drivers, engine trucks, trailer trucks and tender trucks, "Railway" Springs answer every service requirement. They are manufactured from the finest steels in the most modern plants with all the benefits of long experience, progressive research, testing and engineering facilities.

AMERICAN LOCOMOTIVE COMPANY

Railway Steel Spring Division

30 CHURCH STREET, NEW YORK, N. Y.

ALUMINUM, DEFENSE, AND YOU

1

WE INTERRUPT our regular messages to report what's what with aluminum.

AT THE MOMENT delivery for civilian use must make way for defense. Everybody knows the reason. Defense requires and is using more aluminum per month than peacetime America ever consumed.

NEVERTHELESS, we intend that no one shall have to forego the things aluminum can do best one minute longer than we can help.

THERE IS NO SHORTAGE of bauxite, nor of anything else, except time. And Father Time is being given the race of his life.

WE ARE MOVING, for example, 35,000 yards of earth a day at Alcoa, Tenn., to get 50 acres under a single roof by September. It will require 193 carloads of roofing felt. Some of the operations in that plant will start even before the walls are up. That's an annual rolling capacity for 120 million pounds of high strength alloy sheet coming along fast.

LAST MARCH WE STUCK the first shovel in a cow pasture near Vancouver, Wash. In September a 30 million pound plant was delivering metal. It has been doubled, already. A third 30 million pound unit starts delivering in April; a fourth in May; a fifth in June. From cow pasture to 150 million pounds annual capacity in 15 months.

A SIDELIGHT: To make that 150 million pounds of aluminum, we first have to build factories to make 120 million

pounds of carbon electrodes. We have to obtain the equipment (transformers, rectifiers, and the like) to feed 162,500 kw. of electricity into the reduction furnaces. This is a generating capacity equal to that of the state of Delaware plus twice that of Mississippi.

WHAT OF TOTAL PRODUCTION? In addition to Vancouver further installations are being made at other of our plants, so that in less than a year their total capacity will be more than double that of 1939, when 327 million pounds were produced.

IN THE VERY MIDST of this demand we have lowered the price of aluminum ingot 15%. We state, without reservation, our hope that the price can be still further reduced.

DEFENSE APPLICATIONS use aluminum for exactly the same reasons you do. Defense priorities on aluminum simply say that there are some fundamental things that aluminum does supremely well. It will do them still better as important lessons in production, fabrication, and application are learned from every additional pound being produced and used.

YOU, SIR, have been using aluminum in many forms, for many different purposes. It is not easy nor convenient to have to substitute other materials temporarily. We want you to know that we intend to make this hardship as short-lived as possible. Your aluminum is on the way. It is a promise.

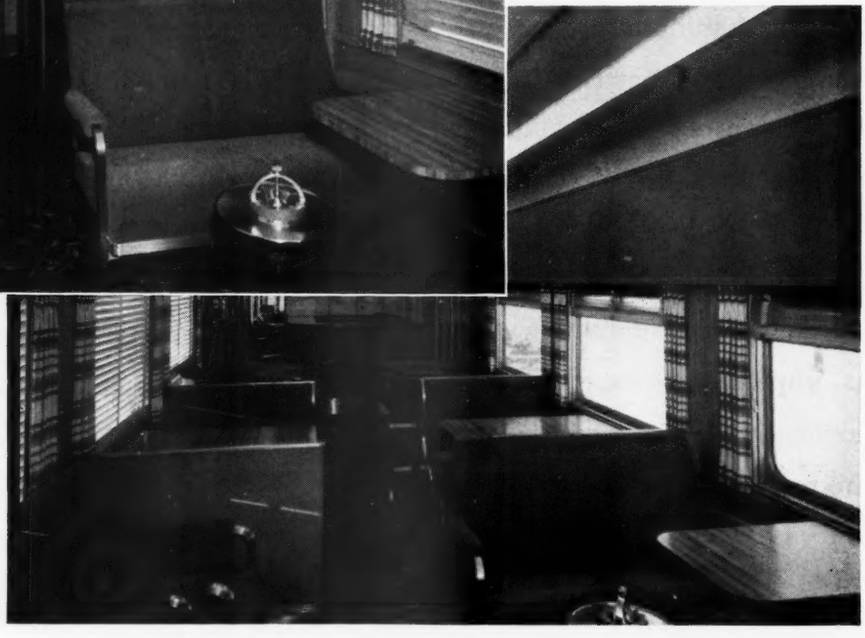
ALUMINUM COMPANY OF AMERICA

"Realwood"

FORMICA TABLE TOPS, BAR TOP

in the "City of Miami!"

● Above: The lounge car of the City of Miami with Formica Realwood table tops and Formica bar top installed by the Pullman Company.



● Right: Another view of the Lounge car. This train was equipped with Formica window sills and Translucent Formica was also used for illuminated numbers to indicate the different Pullman cars on the train.

FORMICA Realwood in a Zebrawood grain was used for the attractive table tops in the Lounge Cars of the "City of Miami" trains which were recently delivered to the Illinois Central Railroad by the Pullman Company.

Although an actual wood veneer was introduced into this sheet and the striking wood graining is entirely genuine, the wood is protected by a durable coating of transparent plastic material from wear or absorption of moisture or stains. It was also made cigarette-proof so that these wood-appearing tops have all the qualities of other Formica.

They will not spot with lighted cigarettes, or alcohol, or cleaning solutions. They are not brittle and will not chip or crack. The colors are stable, and appearance remains the same after years of use. That is why in so many de luxe trains produced in the last few years, Formica has been used for table tops.

When you buy cars, or modernize them, be sure to investigate Formica.

FORMICA

The Formica Insulation Company

4641 Spring Grove Avenue, Cincinnati, Ohio

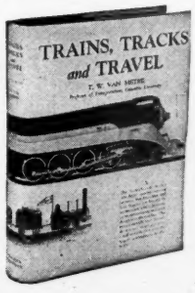
FOR FURNITURE AND FIXTURES

Valuable Books for Your Library

Trains, Tracks and Travel

By T. W. VAN METRE

Professor of Transportation, Columbia University

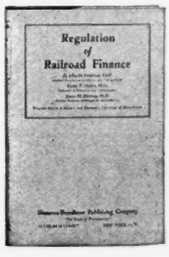


The new edition of this popular book on railroads describes latest practice. There is a complete new chapter on streamlined trains and additions to others covering the new developments in air brakes, air conditioning of passenger cars and in high-speed Diesel and electric locomotives. Among the numerous new illustrations are shown the new streamlined trains. This is an excellent book for a boy who wants to know more about railroads and for the average reader.

1939. 5th. 330 pages, 300 illus., 7 x 9½ in., cloth $3.50.

Regulation of Railroad Finance

By JOHN H. FREDERICK, Ph. D., FRANK T HYPPS, Ph. D., and JAMES M. HERRING, Ph. D., *Wharton School of Finance and Commerce, University of Pennsylvania.*



The regulation of the financial affairs of railroads by the Federal government through the Interstate Commerce Commission, under the Transportation Act of 1920, is herein clearly explained. Various tests applied by the Commission in determining the elements of public interest to which the statute usually refers are traced, together with the nature and reasons for the Commission's action.

237 pages, tables, index, 6 x 9 inches, cloth, $3.50

When Railroads Were New

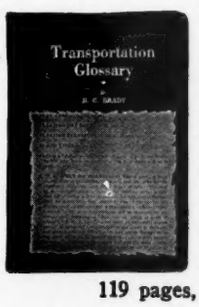
By CHARLES FREDERICK CARTER

A fascinating human interest story of the early American and Canadian railroads and of the men who built and ran them. The author, an old railroad man, tells of the beginnings of the Erie, the Pennsylvania, the Baltimore and Ohio, the New York Central, the first Pacific railroad, the Santa Fe, the Rio Grande, the Canadian Pacific and other lines. It is illustrated with reproduction of wood cuts of early locomotives and railroad scenes.

4th (Centenary). 338 pages, 17 illustrations, 6 x 9 inches, cloth. $2.50

Transportation Glossary

By H. G. BRADY



Technical and semi-technical terms, phrases and expressions in more common use in railway, highway, air and marine transportation, and in port traffic are concisely defined in this handy reference book. Ordinary dictionaries, thesauri and law book sources furnish little information on transportation terms and this book fills a long felt need. It is printed in large clear type and cross references facilitate quick tracing of desired information.

119 pages, 5 x 7 inches, flexible. $1.00

Railroad Mergers

By JOHN WILL CHAPMAN

Member of Investment Staff, United States Trust Company of New York; Formerly Statistical and Security Analyst for the Standard Statistics Company

This book deals with the causes, methods of effecting and results of railroad mergers. It is packed with facts of value to anyone concerned in any way with changes to be effected through mergers of American railroads into large systems. Dealers in railroad securities will find it serviceable as a reference book on subjects of vital interest in their business. Bond owners will be particularly interested in the discussion of credit factors.

1934. 169 pages, 25 maps, 6 x 9 inches, cloth, $3.00

Railroad Electrification and the Electric Locomotive

By ARTHUR J. MANSON

Manager, Transportation Sales Department, Westinghouse Electric & Manufacturing Company

Written primarily for railway officials and operating men who desire a general knowledge of the design, construction, and operation of electric locomotives and of their application to different kinds of railroad service. Typical problems encountered in electrification of steam railroads are outlined, together with their solutions. Fundamental principles are stressed, and the book is illustrated with photographs, detail drawings, diagrams and charts.

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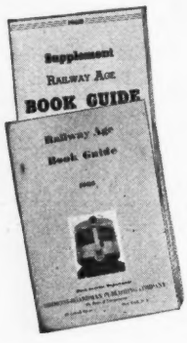

Here is a handy reference booklet on railroad books that are of interest to readers of "Railway Age." In it are described practically all of the books published during the past decade that are in print. They are classified under subject headings and arranged in chronological order. A title index in the back facilitates quick reference.

SUBJECT INDEX

Accounting — Administration — Consolidation — Co-ordination — Economics — Finance — General — History — Law — Officers — Personnel — Rates — Regulation — Statistics — Traffic Management — Valuation.

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1938. 12 page Supplement.

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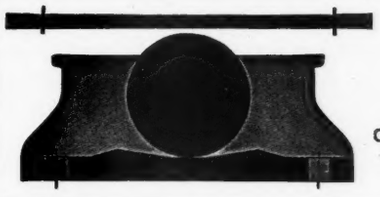
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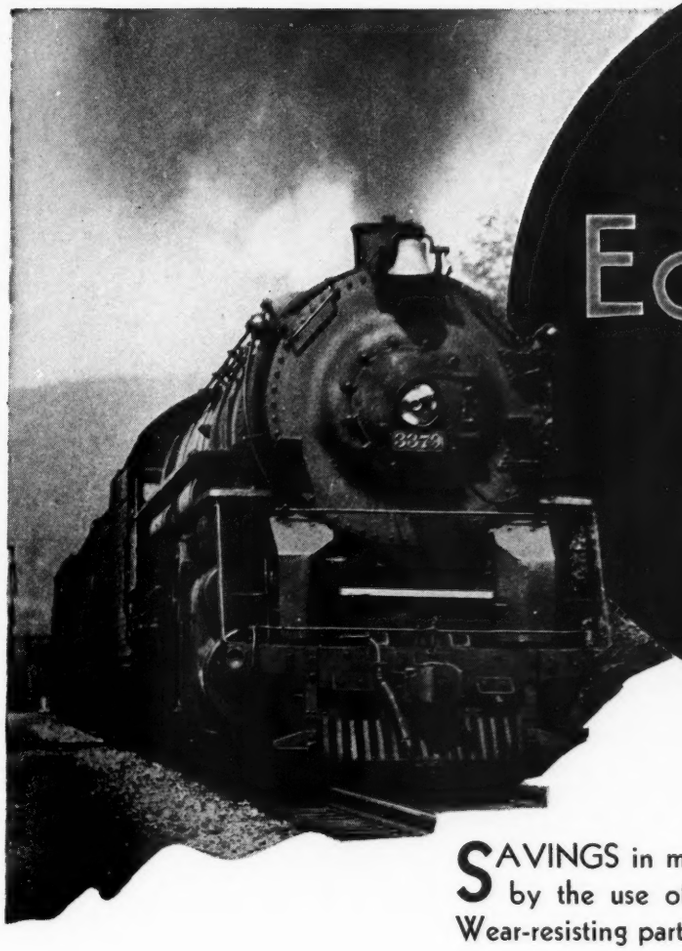

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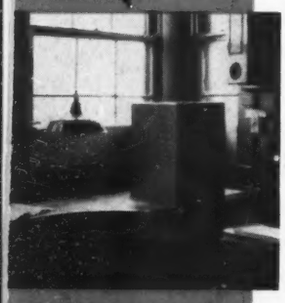

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